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# THE IDENTIFICATION OF
# INDIAN BUTTERFLIES

BY

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# PREFACE

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The subject-matter has been brought up to date and corrections made where found necessary. The more important synonyms to generic and specific names have been inserted, in order to make the volume as complete as possible.

An index has been given for each family as well as for the trivial (English) names used.

The plates for this volume were printed off at the same time as those for the original articles and consequently a number of corrections to the reference numbers have become necessary. A list of corrections will be found after the Index and it is hoped that students will correct their copy of the plates accordingly.

* Not reproduced : corrections embodied.

# CONTENTS


| | PAGE |
|---|---|
| DIRECTIONS TO BEGINNERS... ... ... ... ... | vii |
| KEY TO INDEX ... ... ... ... ... | viii |
| GLOSSARY ... ... ... ... ... | ix |
| BUTTERFLY COLLECTING IN INDIA ... ... ... ... | 1 |
| INTRODUCTION TO THE IDENTIFICATION OF INDIAN BUTTERFLIES ... | 17 |
| KEYS TO IDENTIFICATION.— | |
| Families ... ... ... ... ... ... | 24 |
| A. Papilionidæ ... ... ... ... ... | 25 |
| B. Pieridæ ... ... ... ... ... | 40 |
| C. Danaidæ ... ... ... ... ... | 55 |
| D. Satyridæ ... ... ... ... ... | 60 |
| E. Amathusiidæ ... ... ... ... ... | 84 |
| F. Nymphalidæ ... ... ... ... ... | 88 |
| G. Erycinidæ ... ... ... ... ... | 126 |
| H. Lycænidæ ... ... ... ... ... | 130 |
| I. Hesperiidæ ... ... ... ... ... | 196 |
| INDEX OF NAMES.— | |
| A. Papilionidæ ... ... ... ... ... | 273 |
| B. Pieridæ .. ... ... ... ... | 275 |
| C. Danaidæ ... ... ... ... ... | 277 |
| D. Satyridæ ... ... .. ... ... | 278 |
| E. Amathusiidæ ... ... ... ... ... | 281 |
| F. Nymphalidæ ... ... ... ... ... | 281 |
| G. Erycinidæ ... ... ... ... ... | 285 |
| H. Lycænidæ ... ... ... ... ... | 286 |
| I. Hesperiidæ ... ... ... ... ... | 291 |
| Corrections to Plates ... ... ... ... ... | 302 |

PLATES.—

| | |
|---|---|
| I-VI. | Papilionidæ |
| VII-IX. | Pieridæ |
| X-XI. | Danaidæ |
| XI-XV. | Satyridæ |
| XV-XVI. | Amathusiidæ |
| XVII-XXV. | Nymphalidæ |
| XXVI. | Erycinidæ |
| XXVI-XXIX. | Lycænidæ |
| XXX-XXXII. | Hesperiidæ |

## DIRECTIONS TO BEGINNERS FOR USING THE KEYS IN THE BOOK.

The families of Indian Butterflies are lettered A, B, C, etc., thus :—

*Families*

A. Papilionidæ.
B. Pieridæ.
C. Danaidæ, etc.

} *vide* p. 24.

The genera are numbered serially within the family and the species serially within the genus, thus :—

| A .. | 1 | 2 |
|---|---|---|
| Family... | genus | species |
| Papilionidæ... | Troides | minos (cf. p. 26). |

In identifying a given butterfly the first step should be to discover the family to which it belongs. Turn to page 24 where the key to the 9 families of Indian Butterflies is given. It will be seen, as indicated above, that a capital letter has been ascribed to each family—from the first family, the *Papilionidæ*, indicated by A, to the 9th family, the *Hesperiidæ* or skippers, indicated by I.

The distinguishing structural characters by which we are able to recognize a given family are indicated by a small letter placed immediately behind the capital, thus :—

Aa—denotes that the *Papilionidæ* have one or more veins emanating from vein 7. (v 7) (*vide* p. 24).

But there are other structural characters which must be equally present if the specimen we are trying to identify is to be placed within the family *Papilionidæ*. These additional characters are indicated by Ab, Ac, etc. Should all the characters so indicated be present the butterfly belongs to the family *Papilionidæ*. But if at any step in the investigation the character denoted is not present we have a guide to the next step in the capital letter in brackets which follows immediately, i. e.

Ab(H)--Should the specimen have no precostal vein in the hindwing it cannot belong to the *Papilionidæ* since one of the essential characters are wanting. We run down the list to the family indicated by the capital letter H which follows in brackets, i.e. *Lycænidæ* and thus fix the family to which the specimen belongs.

In tracing the genera the same system is followed except we have a number in brackets instead of a capital thus :—

1a (12a).

The figure 1 represents the genus ; thus 1 = genus *Troides*, 2 = genus *Byasa* = and so on

1b
1c } Denote various distinguishing characters of the genus *Troides*.
1d
1e

Should one of the characters so denoted be absent in the specimen under examination, refer to the number in brackets which follows thus :—

1d(8) if the characters indicated by 1d are not present the specimen cannot belong to the genus *Troides* in which all the characters indicated by 1a-1e must be present—but as the character denoted by 1d is not present we refer to the figure in brackets immediately following, i. e. (8) which brings us down to the genus *Meandrusa*. (cf. p. 25).

The family and genus of the species having been fixed we refer to the specific keys, i. e. if our specimen belongs to the family *Papilionidæ* (A) the genus *Meandrusa* (8) we turn to the specific key A8 on page 36. The specific key is worked in the same manner as indicated above.

## HOW TO USE THE INDEX

In the index published at the end of the book the genera and the species are tabulated under their respective families. If you do not know the family therefore look for the name under the different families. The serial number or numbers printed against them are identical with those used for genera and species in the body of the book.

A single number indicates a generic name, thus :—

'*Armandia*.....11.'

To find the reference to the above name turn to the key to the genera of the family *Papilionidæ* (p. 25) and run down the list of the genera to the genus printed against the serial number 11, i.e. *Armandia*.

Where two numbers are employed the first indicates the genus and the second the species, thus to find the reference to '*Acco*.....13/9' turn to the genus numbered 13 in the family *Papilionidæ*, i. e. *Parnassius* (p. 37) and run down the list of species to the one printed against number 9, i. e. *acco* (p. 39).

Synonyms are indicated by the sign = placed before the serial number. The same system should be employed in tracing references to them as is used with genera and species.

## GLOSSARY

| | | |
|---|---|---|
| Anal valves | ... | Claspers at the apex of the abdomen in the male butterfly. |
| An nular | ... | Ring-shaped. |
| Apical | ... | Description of markings about the apex of the wing (see diagram, p. 20). |
| Basal | ... | Said of markings which lie between the centre of the cell and the base of the wing. |
| C. | ... | When placed after the locality indicates that the butterfly referred to is common. |
| Catenulate | ... | Description of a band-like marking which is composed of a number or rings. |
| Caudate | ... | Bearing tails. |
| Cell | ... | An enclosed area on the wings from which the majority of veins have their origin (see diagram, p. 20). |
| Central | ... | Description of markings which lie about the end of the cell. |
| Cilia | ... | Hair-like fringe along outer edge of wings. |
| Ciliated | ... | Covered with fine hairs. |
| Clavate | ... | Club-shaped. |
| Costa | ... | Margin of the wing extending from the base (B) to the apex (A)—see diagram, p. 20. |
| Costal | ... | Description of markings which lie along the costal margin of the wing (see diagram, p. 20). |
| Coxa | ... | Part of leg nearest body = hip. |
| Crenulate | ... | Description of the outer margin of a wing when it projects at the end of each vein and is concave between the veins. |
| dcv | ... | Discocellular veins—the veins originating from the end of the cell between veins 4 and 7. |
| Dentate | ... | See crenulate. |
| Disc | ... | Area of the wing between the cell and the terminal margin. |
| Discal | ... | Description of markings which lie about the centre of the disc. |
| Dorsum | ... | Dorsal margin of the wing extending from the base (B) to the terminal angle (T) of the wing (see diagram, p. 20). |
| dsf. | ... | Dry season form. |
| Erect | ... | Extending forwards in a vertical direction. |
| Excavate | ... | Hollowed out. |
| F. | ... | Forewing. |
| Falcate | ... | Description of the apex of the wing when it is lengthened or produced beyond the terminal margin which is concave. |
| Fascia | ... | Band, band-like marking on the wing. |
| Fw. | ... | Forewing. |
| Femur | ... | Secod joint of leg=thigh ; between the coxa and the tibia. |
| Filiform | ... | Thread like. Description of antennæ which do not thicken at the tip. |
| Geminate | ... | Description of an occellus containing two central spots or 'eyes'. |
| H. | ... | Hind wing. |
| HW. | ... | Hind wing. |
| Incrassate | ... | Thickened, said of the antennæ which are thickened towards the tips. |

| | | |
|---|---|---|
| Unf. | ... | Under forewing. |
| Unh. | ... | Under hindwing. |
| Upf. | ... | Upper forewing. |
| Uph. | ... | Upper hindwing. |
| Vi–Vi2. | ... | Veins, for order of arrangement see diagram, p. 20. |
| Via. | ... | For position (see diagram, p. 20). |
| VC. | ... | Very common. |
| VR. | ... | Very rare. |
| ♂ | ... | Male |
| ♀ | ... | Female. |

| | | |
|---|---|---|
| Interspace | ... | The space between the veins. These are numbered in accordance with the number immediately below, thus :— the interspace between veins 8 and 7 is described as space 7, that between vein 1 (v1) and vein 1a. (v1a) is called 1a. |
| Longitudinal | ... | Description of markings which run parallel with the veins. |
| Lunulate | ... | Description of a band-like marking composed of conjoined crescents. |
| Macular | ... | Description of a band-like marking composed of conjoined spots. |
| MV. | ... | Median vein—the vein bordering the lower edge of the cell from the base to the vein 4 (*vide* diagram p. 20). |
| Nervures | ... | 'Veins' or ribs which support the membrane of the wings. |
| NR. | ... | Not rare. |
| Occellus | ... | Term for an 'eye' in the centre of a spot. |
| Palpi | ... | Comparatively large processes on either side of the head originating from the edges of the mouth curving forwards in front of the face and eyes. |
| Post discal | ... | Description of markings which lie between the centre of the disc and the sub-terminal margin of the wing. |
| pcv. | ... | Precostal vein, a small curved spur-like vein near the base of vein 8 in the hind wing. |
| Porrect | ... | Extended forward horizontally. |
| Precostal cell | ... | A small cell in the hind wing formed by a small vein between vein 8 and the sub-costal vein (scv) or vein 8 and the precostal vein. |
| Prediscal | ... | Description of markings which lie between the end of the cell and the centre of the disc. |
| Pyriform | ... | Club shaped, said of antenna which terminate in a club. |
| Quadrate | ... | Four-sided. |
| R. | ... | Rare. |
| Scent organ | ... | In the *Papilionidæ* a fold in the dorsal margin of the hind wing of the male butterfly, covered, within the fold, with hairs that are often strongly scented, other forms occur in other groups as brands, pouches, etc. |
| Scv. | ... | Sub-costal vein. The vein bordering the upper margin of the cell from the base to the origin vein 7 (v7) (*vide* diagram, p. 20). |
| Setose | ... | Scaly. |
| Serrate | ... | Furnished with small teeth, like a saw. |
| Sinuate | .. | Waved. |
| Stigma | ... | A narrow brand on the forewing. |
| Striated | ... | Marked with fine lines. |
| Strigæ | ... | Fine lines. |
| Sub-apical | ... | Markings which are near the apex of the wings |
| Sub-basal | ... | Description of markings which lie about the centre of the cell. |
| Sub-terminal | ... | Description of markings which are approximate to the termen or terminal margin of the wing. |
| Tarsus | ... | The part of the leg whereon the butterfly walks = foot or end portion of libia. May be furnished with claws. |
| Termen | ... | Terminal or outer margin of the wing extending from the apex (A) to the tornus or anal angle (1) (*vide* diagram, p. 20). |
| Thorax | ... | That part of the body of an insect situated between the head and the abdomen |
| Tibia | ... | The third joint of the leg between the femur and the tarsus. |
| Tornal | ... | Description of markings which lie about the tornus. |
| Tornus | ... | The lower or anal angle of a wing (*vide* diagram, p. 20). |
| Transverse | ... | Description of markings which lie across the veins. |

# ERRATA.

Page 25, line 3, from bottom, for *Bhutanits* read *Bhutanitis*.

,, 53, ,, 29, for *danæ aanæ* read *danæ danæ*.

,, ,, ,, 32, for *danæ* read *danæ*.

,, ,, ,, 34, for **Hebnomoia** read **Hebomoia**.

,, 58, ,, 38, for *novaræ* read *novaræ*.

,, 74, ,, 22, for *pumipus* read *pumilus*.

,, 85, ,, 32, for *lena* read **lena*.

,, 94, ,, 19 from bottom, for *unifomis* read *uniformis*.

,, 96, ,, 5 from bottom, for *menna* read *mena*.

,, 134, ,, 16. for *Remelena* read *Remelana*.

,, ,, ,, 38, for *Psudomyrina* read *Pseudomyrina*.

,, 136, Note line 5, *for* not, *read* not.

,, ,, under Key to Species *for* 1. *read* H. 1.

,, 142, line 21 from bottom, for *canejus* read *cnejus*.

,, 150, ,, 1, *for* (**Plate 127**) *read* (**Plate 27**).

,, 151, ,, ,, ,, ,,

,, 160, ,, 4 from bottom, for *letha watsoni* read *letha, Watson*.

,, 164, ,, 1, *for* **Horsefieldia** *read* **Horsfieldia**.

,, 187, ,, 1 *for* **78** *read* **H. 78**.

# BUTTERFLY COLLECTING IN INDIA

1. I do not think that anyone, who has taken the trouble to look, can fail to be impressed by the splendour of the butterflies of India. There are many, who would like to study them further, but very few proceed beyond mere admiration, chiefly because of the difficulties involved in following a pursuit without a guide. It is the purpose of this article to draw attention to the variety of interests that underlie the hobby of butterfly collecting and to explain how these beautiful insects may be captured and preserved. I think it was A. R. Wallace who wrote somewhere that the story of evolution is written on the wings of butterflies and I believe that, when the study of zoology can be correlated with the studies of geology, geography and botany by a superman of the calibre of Darwin, the mystery of evolution will be solved. Before the solution can possibly be reached, and it will not be in our generation, a mass of observation work has to be done. The professional zoologist ignores the butterflies and devotes himself either to the lesser known groups or to such as have a definite economic value ; he admittedly leaves butterflies to the amateur and so here is a field in which the amateur, who happens to be an observant student of nature, can help on the attainment of knowledge.

2. The Indian Empire, wherein for zoological purposes are included Ceylon and Burma, is probably the most ideal country in the world for pursuing the study of butterflies. It offers the extremes of heat and cold, of dampness and dryness, of desert and rank jungle, islands and continental areas, an ever-varying vegetation and in many parts sharply marked seasons, while its geological history is most interesting. For faunistic purposes the world is divided into the American, African, Palæarctic and Oriental regions. With the American region we are not concerned. With the African region we have a connecting link through Baluchistan, but in former years the connection must have been a much more important one, since there are a number of genera which we share with Africa. The Palæarctic region comprises Europe, the Mediterranean littoral of Africa, Western and Northern Asia. As far as we are concerned this region is divided into the European sub-region, which embraces Western Asia and reaches us through Baluchistan ; the Central Asian sub-region, reaching Chitral and to a less extent the N.-W. Himalayas ; the Chinese sub-region, which enters the Indian Empire between Sikkim and Northern Burma. The Oriental region comprises the Australian and the Indo-Malayan sub-regions and the latter is divisable into the South Indian (including Ceylon) and the Malayan, covering all Lower Burma ; it must be remembered that the mighty Himalayas are mere children on the face of the globe and only possess a bastard fauna made up of immigrants from other far older areas. The Indian area, as defined at the beginning of this paragraph, can be divided for convenience into the following reasonably well-defined sub-areas :—

*A*. Ceylon, closely allied to South India, but, being an island, it has a number of forms peculiar to itself.

*B*. South India, embracing the Madras and Bombay Presidencies, excluding Sind, but stretching up into the Central Provinces and Bengal.

*C*. Baluchistan and Sind (more or less), possessing an almost entirely Palæarctic fauna and showing little or no connection with the fauna proper of India.

*D*. Chitral and Ladak, with a Central Asian fauna more or less modified to suit local conditions ; the high elevation species extend right along the Himalayas to Sikkim.

*E*. The Western Himalayas from Kashmir to Kumaon, with a bastard fauna made up of species that have found their way there from the Central Asian, Chinese and South Indian sub-regions, many of which have been modified so as to constitute, well-defined races or even species.

*F*. The North-East corner of the Empire, running from Sikkim to Northern Burma (Shan States). This is one of the most interesting areas in the world. The Central Asian, Chinese, Malayan and South Indian

sub-regions have found a most fertile meeting place here; it is also more or less of a country in the making and in a number of genera variation seems to have run riot.

*G.* Lower Burma from the Karen Hills to Victoria Point, containing a slightly modified Malayan fauna, while in the extreme South many purely Malayan forms are to be met with.

*H.* The Andamans and Nicobars, which have a fauna made up of modified Malayan forms, but displaying a very distinct affinity with South India.

The above sub-areas can no doubt be divided still further, but greater detail need not be entered into here. It will be seen that the Plains of North India have not been dealt with in the above list; they have no characteristic fauna of their own and the few species that are to be met with are all members of one or other of the recognized sub-areas.

3. Butterflies differ from moths in a number of ways, but no hard and fast line can be laid down. The chief distinguishing characters are:

*A.* Butterflies for the most part fly by day; they never fly at night, but a few species remain dormant until the dusk.

*B.* They have as a rule knobbed or hooked antennæ, which are straight and are held in front of the head.

*C.* Most butterflies rest with the wings erect.

*D.* The upper and lower wing on one side of the body are never joined at the base.

The species of butterflies are divided into a number of families, sub-families and genera depending on their structure, into the details of which we need not enter here. The Indian butterflies have not up to the present been given English names, though every school in the hills has assigned to the more conspicuous species found in the immediate neighbourhood fancy names of sorts. Scientifically a butterfly is recognized by two names, that of the genus being followed by that of the species; for instance *Papilio machaon* is the ordinary English swallowtail. Butterflies that occur over a large area are apt to develop into a number of well-defined races and in order to distinguish them a tri-nominal system of nomenclature has been adopted; for instance *Papilio machaon* is the European race of the common yellow swallowtail. *Papilio machaon asiatica* is the Western Himalayan race, *Papilio machaon sikkimensis* the Chumbi Valley race and so on. If it is desired to distinguish a variety, the abbreviation v. is put before the varietal name; for instance *Papilio machaon asiatica* v. *ladakensis* is the short-tailed variety of the common yellow swallowtail found in the Western Himalayas. If the variety is confined to only one sex, the sex sign ♂ for male and ♀ for female is put before the v.

4. For the purpose of this article the main divisions into which the butterflies, or scientifically the *Rhopalocera*, are divided may be briefly described as follows:

*A.* Papilionids or Swallowtails. Many of them have no tails and are mistaken for members of the following groups; however a glance at the legs settles the point at once; in this and groups B, H, I, the forelegs are as long as the others, while in the groups C.—G. the forelegs are short and quite useless for walking. There are many magnificent swallowtails in India and they can vie in beauty and diversity with their cousins in any other part of the globe. In the South and North-East and in Burma there fly the *Troides*, great black insects with brilliant yellow hind wings, which fly slowly far out of reach at the tops of trees. Then there is the wonderful black swallowtail with a peacock-green hindwing found in the hills, and the delicate white, black striped, swallowtail of the Himalayas. There is the *Armandia*, a truly magnificent butterfly from Bhutan, the Naga and Chin Hills, a many-tailed creature with a large red area on the hind wing. The *Teinopalpus*, a wonderful green and yellow butterfly, that is to be found on Tiger Hill, Darjiling, and in the hills of Assam and North Burma. The *Leptocircus*, a small and very curious looking insect, which has enormously long tails and presents a striking resemblance to a dragonfly. Finally the *Parnassius* or 'Apollo' butterflies, inhabitants of the highest Himalayas; beautiful white insects with black, red or blue spots.

*B.* Pierids, or 'Whites'. The majority are white, such as the well-known 'Cabbage white,' but many are yellow and a few are even red or

more or less well-defined races according to the areas they occupy and the modern tendency is to name more races as more material becomes available.

| Group. | Ceylon. | South India. | Baluchistan. Sind. | Chitral. Ladak. | N. W. Himalayas. | N. E. India, N. Burma. | S. Burma. | Andamans. Nicobars. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| A. Papilionids ... | 15 | 19 | 4 | 9 | 24 | 66 | 51 | 10 | 92 |
| B. Pierids ... | 30 | 35 | 24 | 28 | 34 | 51 | 37 | 19 | 88 |
| C. Danaids ... | 12 | 11 | 3 | 4 | 8 | 18 | 30 | 15 | 35 |
| D. Satyrids ... | 16 | 30 | 13 | 23 | 52 | 111 | 43 | 9 | 181 |
| E. Amathusiids... | 1 | 3 | ... | ... | ... | 18 | 16 | 2 | 26 |
| F. Nymphalids... | 37 | 51 | 4 | 34 | 74 | 169 | 129 | 38 | 229 |
| G. Erycinids ... | 3 | 3 | ... | 1 | 9 | 19 | 15 | ... | 25 |
| H. Lycænids ... | 79 | 87 | 20 | 43 | 87 | 256 | 230 | 62 | 413 |
| I. Hesperids ... | 46 | 74 | 12 | 13 | 59 | 194 | 184 | 36 | 280 |
| Totals ... | 239 | 313 | 80 | 155 | 343 | 901 | 735 | 191 | 1,369 |

6. As no doubt everyone knows, a butterfly has passed through the stage of egg, caterpillar and chrysalis. The study of the early stages of the butterflies of India has with two brilliant exceptions been most woefully neglected. The first of these is Mr. T. R. Bell, the author of the papers published in the *Journal of the Bombay Natural History Society* entitled *Common Butterflies of the Plains*; he has discovered the life history of practically every butterfly that inhabits the North Kanara District of the Bombay Presidency; as a matter of interest I may mention that in at least one case Mr. Bell has reared a butterfly that has never yet been found flying. The second is the late Mr. P. W. Mackinnon, who in Vol. XI of the same Journal described the life history of most of the butterflies of Mussoorie. Every fully developed living organism is said to climb up its genealogical tree before it attains maturity, so that the importance of studying the early stages can hardly be overestimated; our classification still presents many imperfections, which will not be removed until a great deal more has been discovered regarding the early stages. Breeding butterflies is a rather troublesome business and necessitates continued residence in one place; the opportunities afforded the ordinary official are somewhat limited and it is chiefly to the planter or the retired individual that we must look for assistance. The great desiderata are observers in the Darjiling district and in Assam and Burma, more especially the rubber planters or tin miners of Mergui and Tavoy. Many years ago a distinguished American naturalist, who spent some time collecting butterflies in India, evolved a classification for the skippers based on the eggs, but lack of material rendered it unreliable. Under a microscope of moderate power the

blue. There are the 'Brimstones,' 'Clouded-yellows' and 'Orange tips.' The most characteristic Indian representatives are perhaps the members of the genus *Catopsilia*, large greenish white insects, and the small yellow *Terias*, several species of which swarm in every garden. The most variegated species belong to the genus *Delias*, the plains member of which is a white insect with large red spots along the edge of the hind wing below.

*C.* Danaids. Large, tough, insects which contain nasty juices and can emit evil odours at will, whereby they are rendered distasteful to their enemies. Two tawny and one blue and black species of the genus *Danais* and one white spotted dark velvet brown species of the genus *Euplœa* are to be found lazily flitting about every garden in the plains. In N.-E. India and Burma many of the Euplœas are shot with a most splendid iridescent blue colour. A third genus (*Hestia*) containing very large black-spotted diaphanous butterflies is to be found near the coast in Ceylon and South India and in the mangrove swamps of Burma.

*D.* Satyrids or 'Browns'. As a rule the members of this somewhat numerous group prefer the shade and are most often to be seen flitting about in jungle; a few species patronize rocky slopes. They are mostly sober coloured insects with rings or eyes on the wings and in England are known as meadow-browns, heaths, walls, ringlets, etc. They vary in size from the tiny *Ypthima* to the very large *Neorina* of N.-E. India.

*E.* Amathusiids. This group attains its greatest developments in South America whence come those wonderful metallic blue insects one sees in the shop windows of Regent Street mounted as ornaments. They are only found in or on the edge of thick jungle and do not fly much by day unless beaten up. Nearly all the species are very large and, though our Indian forms do not equal the S. American ones in splendour, yet they have nothing to be ashamed of.

*F.* Nymphalids. These are the true sun lovers amongst butterflies and the group contains a large number of handsome species. The well-known 'Painted lady' can be taken as their universal representatives, but the diversity of forms is extraordinary. Some of them, the genus *Charaxes* for example, have very large and strong bodies and can fly like birds; others, such as the delicate 'Map butterfly' sail gracefully in the sunshine. The wonderful 'Leaf butterfly,' the white and red 'Admirals,' the 'Tortoiseshells,' the 'Purple emperor' and the 'Fritillaries' are all members of this group. We all know the merry little bright blue and yellow *Junonias* that flit about just in front of us along our bungalow paths, also the large *Hypolimnas* with blue-ringed white circles that often appears in swarms shortly after the break in the rains.

*G.* Erycinidæ. A small group as far as India is concerned, but in S. America there are numerous species.

*H.* Lycænids or 'Blues'. The most numerous family of all and in many respects the most interesting. When a collector has obtained most of the representatives of the large and handsome members of the preceding groups, he turns his attention to the Lycænids and always regrets that he did not think of them before. The diversity in colour, markings and shape is greater than in any of the preceding groups. The Lycænids are divisible into two main groups, the 'weak' and the 'strong' or the true 'blues' and the 'hairstreaks.' Amongst the 'hairstreaks' are to be found the most brilliant metallic blues, greens and brassy tints. In many species the tails are very long and in others short and thread-like.

*I.* Hesperids or 'Skippers.' This group differs greatly from those that have preceded it. They are mostly small, rather dull-coloured insects, with large heads and bodies and a very rapid flight. Some of the species are crepuscular, while others delight in the sunlight. The group is not so well known as the rest, but the advanced entomologist finds that it presents features of the very greatest interest. The accumulation of a great deal of more material is needed to enable the group to be worked out properly.

5. Below is a table, which shows how the various groups are distributed amongst the sub-areas detailed in para. 2. The total given in the last column are for the actual species known; many of these species have developed into

eggs are wonderful things. The caterpillars are of many different forms and colours, while the chrysalis are often most curious and are concealed in a marvellous manner. I will not enlarge on this subject, but will refer those interested to Mr. Bell's articles, than which nothing better has ever been published. A study of the food plants in various localities with notes as to how they differ would be most valuable information towards affording an explanation of the geographical variation of butterflies.

7. The investigation of the structure of the perfect insect can safely be left to the cabinet naturalist, but it is only the field naturalist who can supply information regarding the habits of butterflies. There are numerous points to be noted. Males are often to be found playing about in the sun or sucking moisture in damp spots. The female attends more strictly to her business of egg laying and requires watching as to where she lays her eggs, whether singly or in clutches, on what particular food plant and whereabouts on it. Caterpillars can sometimes be seen feeding openly, but for most of them a very close examination is needed; many are night feeders; a good plan is to beat bushes and with luck the caterpillars will fall into a net held below. The caterpillar passes through various moults and requires examination at every stage. The act of turning into a chrysalis demands close observation and the manner in which the chrysalis reposes; some hang free from a twig, others are secured by a girdle, while some remain like a grub inside a fruit. The actual emergence of the butterfly is a sight rarely seen but very well worth watching. The habits of the actual butterfly require much observation; the season of emergence, number of broods in the year, duration of life, mode of flight, nature of habitat and so on all require recording. There is no end to what can be done and all of it is interesting. There seems to be a very general impression that the life of a butterfly is limited to one day; if an enemy secures it on the day it emerges, then all is over, but many survive for very long periods; for instance in the Himalayas nearly all the butterflies one sees in the spring emerged in the autumn and have lived through the winter, coming out very often for a flight on a warm day; in Japan there is a species that emerges in July and flies till the following May.

8. If a butterfly flaps about in a lazy fashion, it is probably more immune from dangers than those that have a rapid flight or seek cover rapidly. This brings us to the interesting subject of mimicry and in India we have some of the most striking examples in the world. Now the Danaids are probably the most highly protected family and we find that the female of a common Satyrid and a Nymphalid resemble a certain common Danaid almost exactly, though the males in each case are totally different. Again among the swallowtails the red-bodied group are highly offensive and we find that certain females of the black-bodied group resemble them exactly except for the colour of the bodies. Again among the *Euplœa* genus of the distasteful Danaid family there is a marvellously close resemblance between species inhabiting the same area; in South India for instance the only three members of the genus are so alike that somewhat of an expert is required to distinguish between them. The reason for this latter form of so-called mimicry is stated to be that the young enemy has to learn by sad experience what is distasteful and what is palatable; so he starts by sampling everything that comes along and soon learns to distinguish the nasty from the tasty; thus the nasty group are likely to lose fewer individuals if they present the same general appearance to the enemy For the same reason it is an advantage for a distasteful butterfly to be coloured conspicuously; it is thus able to warn the enemy that it should be left alone.

9. The observer will soon notice that a large number of butterflies, more particularly the inhabitants of jungles or undergrowth, are marked in a peculiarly cryptic fashion on the underside and that, when at rest, they are so assimilated to their surroundings as to be practically invisible. Many of them are wonderfully coloured above and cannot fail to attract attention but, when they alight, they seem to disappear. The famous 'Leaf' butterfly can be cited as one of the most striking examples; the upperside bears a broad yellow or blue band, while the underside almost exactly resembles a dried leaf. The tails of a butterfly are considered to be an important life saving device and certainly they do not seem to be much use for anything else; the hind wings project well beyond the body and just before the tail there is an eye; the idea

is that the enemy thinks that the hinder end is the head with the prominent eyes and that the tails are the antennæ; he makes his dart but the butterfly flies cheerfully away minus his tails the loss of which do not worry him at all, but of course he will not escape so easily again. Several theories have been propounded to explain the mystery of mimicry; to me the whole subject remains an absolute mystery and I can safely assert that a great deal more observation work is needed before anyone can produce a theory that will convince the man in the street. I cannot believe that a butterfly has been able to perfect the art of camouflage, as he undoubtedly has done, by means of his own unaided intelligence.

10. Bound up with mimicry is the question as to what are the enemies of butterflies and here again much observation is needed. I think that the principal enemies are lizards, as far as the butterfly is concerned, but there are undoubtedly many others. I have seen a kingcrow making a good meal off butterflies on the wing, and a bush containing a praying mantis is often marked by numerous butterfly wings strewn below it. In the earlier stages the enemies are probably much more numerous, and birds in particular eat the caterpillars very freely; many of us as schoolboys have been bitterly disappointed to find an ichneumon fly emerge from a chrysalis we have carefully reared.

11. Butterflies share with all other living beings the strong natural tendency to enlarge their sphere of action, but certain species are known to indulge in the most extensive migrations. Certain Pierids (the Catopsilias) are in India the most persistent emigrants. They can sometimes be seen in great herds treking in a straight line over hills and plains at a pretty constant speed. Certain other species often join in the migrations. A common blue (*Lampides bæticus*) migrates in the spring. In March at Rawalpindi I have observed this species migrating for several weeks; across a width of 20 yards I counted 90 per minute passing during the period of greatest intensity; throughout the whole period the direction was 5 degrees North of West. Again and again I have noticed butterflies flying in a definite direction; they may turn aside to a flower or to inspect a passer by, but they eventually continue on in the same direction. In the *Journal of the Entomological Society* there have appeared recently some interesting articles dealing with the migrations of certain Pierids in the Island of Trinidad; the butterflies apparently started at the South end of the island, travelled direct to the North end, then turned West, leaving the island eventually in this direction for the mainland of America. The density of these migrations was so great that motor cars had to stop moving on the roads, since nothing could be seen through the wind screens.

12. I should now like to touch lightly on the subject of variation, regarding which much has been written, but there is no doubt that theory still predominates over proved facts. The whole subject is most fascinating and, as I said at the commencement of this article, not only do butterflies offer the best medium for its study but also that we are better situated for the purpose in India than anywhere else in the world. There are four kinds of variation to be thought of; sexual, individual, seasonal and geographical. Sexual variation can be dealt with very briefly. In many species the two sexes are almost indistinguishable; in the majority there is a marked difference; in a few there is no resemblance whatever between the sexes and it is only comparatively recently that they have been ascertained to belong to the same species. Among the nasty groups the resemblance between the sexes is pretty close and this is also the case more or less amongst the group with cryptic undersides. In the unprotected groups there is usually a considerable difference; it is the female that is always duller and less conspicuous than the male, while in certain genera the differences between the males of the various species is considerable, but the females are so alike as to require a first class expert to allocate them to their correct males. It is no doubt the object of Nature to preserve the life of the female for a longer period than the male since after fertilization she has to devote her time to laying her eggs. Possibly Nature's intention is that the bright coloured males in the unprotected groups should be sacrificed to the enemy, so that the insignificant females are preserved.

13. Individual variation may arise from a number of causes; different nutrition in the caterpillar stage, effect of light or temperature on the chrysalis, are

probably the most important, but there are no doubt others that we do not even suspect at present. In some species the variation is extraordinary ; for instance the undersides of no two leaf butterflies are alike. Again in the little yellow Pierid (*Terias*) of the Indian garden the variation between individuals is tremendous. In many butterflies the variation is very small, but a minute examination will show that no two individuals are exactly alike any more than are two human beings. All the varieties of this class can be more or less linked together by intergradations, provided one can obtain a long enough series. There is, however, another class or individual variation, where very distinct varieties occur that cannot be linked together ; this kind of variation is called dimorphism. For instance a few species of Papilionids exist in two totally different forms in both sexes. Two other Papilionids each have three totally different forms of females. In one of these, the black-bodied *Papilio polytes*, the first form of females resembles the male and is comparatively rare ; the second resembles a rusty red-bodied swallowtail, which only occurs in the peninsular portion of India, where alone this form of female is to be found though the species is met with nearly everywhere ; the third and commonest form is like another red-bodied swallowtail found everywhere. There is yet another kind of individual variation known as an aberration or sport ; these are rare but occur in some species more than in others ; they are usually very different to the parent form. This class of variation has attracted a great deal of interest of late years and forms more or less the basis of the theory known as Mendelism, which by experiments on domesticated animals and plants has been proved to be a law and no mere theory. It is supposed by some authorities that it is these sports that give rise to new species in Nature.

14. Seasonal variation, as one might expect, is most marked in Indian butterflies. In any species that has two or more broods during the year, differences to a greater or less degree are to be found between the broods and, as a rule, the greater the local difference of season, the more apparent the influence on the wings of the butterfly. In some of the Satyrids the differences between the undersides of the two seasonal forms is startling and for many years they were regarded as different species : in the instances to which I am referring locality does not appear to affect the intensity of the dimorphism. In the dry season form the underside exactly resembles a dried leaf, while in the wet season form the underside is evenly striated and bears a row of eyes along the border. The reasons for seasonal variation are probably to be ascertained by a close investigation of the caterpillar stage and perhaps are due to the seasonal variation in the food plant ; in some species it is possible that the characteristic has been inherited from bygone days and still remains though the original causes have disappeared.

15. Geographical variation presents a most interesting field for investigation and it is not unlikely that in geographical variation combined with Mendelism will be found the solution to the formation of species. As pointed out in para 11, Nature is always urging a species to enlarge its sphere of action and, if a species spreads to a district which differs in climate or other particulars from its original home, it may, if it is a decadent species fail to establish itself, but if it can contend with the change in the caterpillar food, the new enemies to be encountered with and the new climatic conditions, it will form a new colony. The different conditions may soon have an influence on the appearance, habits, etc., of the butterfly and a definite, easily distinguished, geographical race may become established. If the species is given to produce aberrations or become so by reason of the new conditions, as is quite probable, the sport, which is a recessive under Mendel's law in the original home may become the dominant and, gradually swamping the normal form, establish a new species. If the habitat of the parent species and of the colonists is not separated by an impassable barrier, such as plains in the case of hill species or hills in the case of plains species or desert or sea, it is quite likely that the races will remain closely allied and can be graded in a long series. If, however, a barrier exists or becomes formed by geological changes, the two races will gradually become more and more different as the centuries roll on, and should the changes in the earth's surface ever bring them together again, they may be unable to interbreed and therefore must be regarded as species. Increase in elevation appears to have a considerable effect and I am not at all sure whether certain closely allied so-called species, found at different elevations, are not really conspecific, a

certain feature being dominant in one area and recessive in another. Some of the inhabitants of the Himalayas differ on every watershed or in every large valley. There is a certain large Papilionid, *memnen* by name, that presents several remarkable features, not the least of which is that it possesses three forms of female, one of which is tailed, while the male and the other two females are tailless. Now in South India and Ceylon there flies an allied species called *polymnestor*, where the sexes are nearly alike, but are widely different from *memnon*, in that they bear a broad pale blue band above. Now *memnon* and *polymnestor* meet in the lowlands of Sikkim, but do not appear to trespass on each other's boundaries ; yet certain known aberrations of *memnon* show a marked resemblance to *polymnestor*. I would not be at all surprised to hear that they were conspecific and that each is the dominant in its own area but the recessive in its neighbour's. In Nature it would seem that the recessive always becomes swamped by the dominant, unless it gets its chance under changed conditions, which are more favourable to the recessive than to the dominant. Breeding experiments on these lines might reveal all kinds of secrets. While speaking of the butterflies *memnon* and *polymnestor*, an interesting fact may be mentioned regarding the Andaman representative ; the male shows a much closer resemblance to *polymnestor* than to *memnon* and is tailless, while the female appears to be a totally different insect and is almost exactly like the tailed female of *memnon*.

16. There are one or two other characteristics displayed by butterflies that I would like to draw attention to, as showing what an interesting subject their study can be. Butterflies possess peculiar instincts, regarding which we know very little. The latest theory regarding their eyesight is that not only do they fail to distinguish objects at a range exceeding twelve inches, but that they are also totally colour blind. Yet a butterfly can fly at a great pace unerringly through the closest jungle and appears to be able to distinguish his mate at great distances (the English 'drinker moth' can, I understand, locate a female at a range exceeding a mile) : he can locate flowers with apparently no scent quite easily and return to the same bit of carrion the next day, if he is so inclined ; the female in selecting the correct food plant for her eggs proves herself to be a botanist of no mean calibre. Whatever a butterfly's eyesight may be, there is no doubt that he can spot at once the least movement that is out of the ordinary, as the collector will soon notice when stalking a wary species.

17. Many males display certain extraordinary features, known as secondary sexual characters ; some have brands of specialized scales on the wings, others pouches and again others recumbent or erectile tufts of hairs ; some species have a profusion of these features. In the Danaids the male can protrude long pencils of hairs from the end of its body. The functions of these characters are not understood and will only be solved by close observation work. Some butterflies, notably amongst the Morphids, emit a pleasing scent resembling vanilla, which remains for a long time after death. The primary sexual characters of the male are most extraordinary and have received a great deal of attention in recent years ; their structure has in many cases proved of the very greatest importance in classification, while in certain very closely allied species, an investigation of the genitalia is needed, before they can be accurately determined. Another curious characteristic is that displayed by the caterpillars of certain Lycænids ; they are attended by various species of ants, who in return for being allowed to suck the juices exuded from certain glands, look after the caterpillar and protect it from its enemies ; the habit has got so strong that the caterpillar cannot live without its particular species of ant being there to protect it.

18. The foregoing paragraphs have been written with the idea of showing those who have taken a superficial interest in the butterflies of India, that the pursuit of butterfly collecting in real earnest contains many fascinating avenues to be explored ; I may say that I have only touched on the fringe of the whole subject. The first desideratum, however, is the making of a collection, so that the species may be identified and the knowledge already accumulated rendered intelligible. We should never get any forrarder, if we all had to start where Adam did. There are no real difficulties about making a collection and with ordinary care its preservation is moderately simple.

19. The best kind of net is of the form shown in the sketch. I have tried many patterns and speak with some experience. The net is a strong one and can be used for beating bushes. It is an article of store, known as the 'Balloon Net', and can be obtained from Watkins and Doncaster, 36 Strand, London, W. C., or from the Army and Navy Stores, Bombay or Calcutta. Any decent bazaar mistri could turn out the frame, if given the drawing and the description, while any dirzi could make the net. The material for the net is a matter of importance; it must be soft and any new stuff should be thoroughly soaked to get the starch out; mosquito netting, mull mull, leno are all good and what is known as pineapple silk is better still; colour is probably of no importance, but green and sometimes khaki is fashionable. Always carry a spare net to replace a torn one.

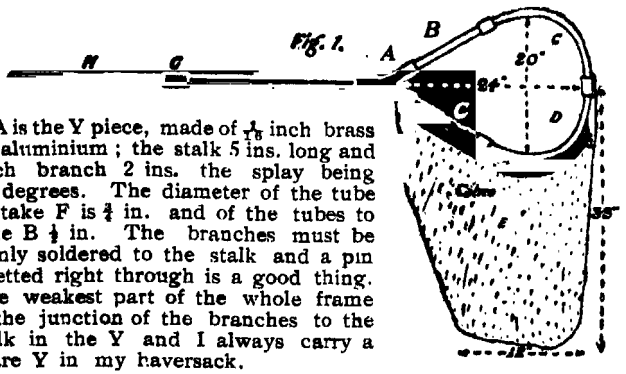


Fig. 1.

A is the Y piece, made of $\frac{1}{16}$ inch brass or aluminium; the stalk 5 ins. long and each branch 2 ins. the splay being 70 degrees. The diameter of the tube to take F is $\frac{3}{4}$ in. and of the tubes to take B $\frac{1}{2}$ in. The branches must be firmly soldered to the stalk and a pin rivetted right through is a good thing. The weakest part of the whole frame is the junction of the branches to the stalk in the Y and I always carry a spare Y in my haversack.

B, B are the base pieces of the frame; they must be of stiff wood 17 in. long by $\frac{1}{2}$ in. diameter. The A end should be brass capped so as to fit the Y and the other end should have a brass socket so as to take C and D.; C, D are the top pieces of the frame, made of cane, $\frac{3}{8}$ in. diameter, bent as shown; C is 18$\frac{1}{2}$ in. and D 16$\frac{1}{2}$ in. long. is brass capped one end and socketted the other; D is socketted both ends. All caps and sockets must be secured by a pin running through the wood.

E. is the net. The top portion is made of strong calico, length all round 66 in. by width 2 in. The dimensions of the net are shown in the drawing. At the Y and at the apex the calico and the net are slit down for a distance of 5 in. the slit being lined with calico; this is for putting on the frame and I then close the opening with a safety pin.

F is the stick, a stout bamboo 39 in. long by $\frac{3}{4}$ in. diameter.

G is a brass tube 4 in long by $\frac{3}{4}$ in. diameter. It is fixed on the end of H, the extension stick, and fits on to G, when it is desired to catch butterflies out of ordinary reach.

20. To catch a butterfly, a rapid sideways sweep of the net is probably the best method, followed by a twist of the wrist so that the net is folded over the frame. Before making the sweep, see that you are not going to get the net torn to bits by a thorny bush. Certain butterflies sit very tight on the ground and for them the best method is to flop the net over the butterfly and then quickly hold up the net itself vertical, when the well behaved ones will fly up and the twist of the wrist, as before, will do the rest.

21. Having caught the butterfly the next thing to do is to kill it. I always pinch them and believe it to be the best method. The butterfly should be killed as quickly as possible by getting it into a fold in the net, persuading it to fold its wings over its body and pinching it at the thorax or that part of the body, whence spring the legs; the Danaids require a great deal of pinching, but delicate butterflies require only a light touch. A little practice is required to avoid damaging the legs and rubbing the wings, but there is no great difficulty Another popular method is to use a killing bottle, which must have

a very wide mouth and be filled to a depth of half an inch or so with a paste containing cyanide of potassium ; any chemist will supply it. My objection to the killing bottle is that it is a cumbrous thing to carry about and one wants to be lightly equipped when chasing butterflies ; however, the cyanide bottle is used by a number of experts.

22. The treatment of a butterfly after he has been killed depends on what is to be done with it ; that is to say whether the collector means to set it, when he gets in, or to put in an envelope so as to set it at leisure in his old age or to use it as a duplicate to send to his friends. According to the size of the body, rigor mortis sets in quickly or slowly ; a stout Nymphalid will remain in a settable condition for a day or more, but a delicate blue becomes stiff in an hour on a hot dry day. A butterfly that has become stiff can of course be relaxed for setting, but it is always more satisfactory to set it before rigor mortis has set in ; a butterfly that has been set after relaxing has an aggravating tendency in damp weather to revert to the folded position in which rigor mortis set in ; also the danger of breaking off legs is greater and the whole operation of setting is more difficult in the case of a relaxed specimen. Now I have adopted the following method after having tried many others. Having caught the butterfly, I decide whether I will set it that evening or not. If I decide to set it, I pin it and place it in a small cork lined zinc box, the upperside of which I take care to keep damp ; if time is short, owing to there being many good things about, or if my hand is shaky after an exciting chase, I pin it sideways as a temporary measure, but pin it ready for setting when I sit down for a breather. If my box is crowded, I often pin a butterfly inside my hat, where it keeps damp enough. If I decide not to set, I put it unpinned with its wings folded over its back into a 'cocked hat' envelope. The spare envelopes can be carried in one's pockets, but, when filled, they should be put into a cigarette tin, since the friction that may occur in one's pocket is very likely to cause serious damage. Once a butterfly has been killed, I never handle it with my fingers again, if I can help it ; to move him about and to get his wings folded correctly, I use a pair of tweezers with rounded flat ends ; they can be bought from a chemist, but the ends usually want filling. A heavy day's catching may result in a bag of as many as 100 butterflies and experience has led me to adopt the above method as the most satisfactory for dealing with large numbers.

23. Setting a butterfly requires a good deal of practice ; don't be slipshod about it ; a well set butterfly looks infinitely nicer than a poorly set one. The old English method was to set on boards like this ; very low on the board with the wings curving down ; it is not a good method and has been abandoned by all museums and good collectors in preference for what is called the continental method. Personally I use a modified continental system, because the correct one involves very deep boxes and consequently more trouble when moving. Still I recommend anyone who is settled to use the correct system. The board is like this ; the depth of the slot being $\frac{3}{4}$ ins. ; in my method the depth is $\frac{1}{2}$ in. Boards can be obtained ready from Watkins and Doncaster or the Army and Navy Stores ; several sizes are required for various sized butterflies : I recommend the following widths out to out by width of slot ; $12 \times \frac{1}{2}$ ; $6 \times \frac{1}{2}$ ; $5 \times \frac{1}{2}$ ; $3 \times \frac{1}{2}$. Don't leave a setting board out in the open even for a few minutes unattended as ants can do an infinity of damage in no time. They should be put in a tight fitting box or in a meat safe with the legs resting on saucers full of water. I have made my own setting box, which consists of an ordinary small sized store box, from which I have removed the linoleum lining, cut it into strips and then glued the linoleum to strips of wood which are screwed to wooden fillets and secured by small screws to the bottom of the box ; the soft wood forming the bottom of the box takes a pin well enough. I give here a sketch of it. The top and bottom are not hinged together ; so that each half can be manipulated easily. I have found the box most satisfactory and carry it about in all my tours, so as to get fresh set specimens for my collection. The

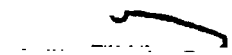


Fig. 2.

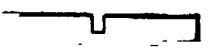


Fig. 3.

continental pin is white, 1½ ins. long and of varying thicknesses; unless it is made of nickel, it rots pretty soon in India, but nickel pins are rather too pliable to please me. I use black enamelled brass pins of two sizes, both pretty stout; 1½ in. long for large butterflies and 1 in. for small ones; Nos. 4 and 2 Kirby and Beards; it would probably be better to confine oneself to one size. Pins are best obtained from Watkins and Doncaster. Always pin a butterfly with the pin sloping well forward. To set the butterfly, pin it to the board, taking care that the slot is wide enough to take the body easily and no more; with the long legged Papilionids it is a good thing to fold the legs up against the body during setting by means of a strip of cardbord on the pin below the body; see that the point of junction between the wings and the body is just on a level with the top of the board or a shade above. Then bend down the wings on either side by means of a pin arrangement (fig. 6); A is a needle 6 ins. long for large and 4 ins. for small butterflies, B is a glass headed pin and C a small cube of cork or linoleum. Then pull forward the wings by means of a setting needle, which should be inserted lightly just behind a vein about the middle of the forward side of the wing: don't make more holes than you can help and ease the pressure on the glass headed pin as the wings are pulled forward; the setting needle merely consists of an ordinary fine needle with a blob of sealing wax at the eye end. The sketch shows how far forward the wings should be pulled. Having arranged the antennæ satisfactorily, using temporary pins as necessary, secure the wings by strips of clean paper, of the kind used for the pages of this book, by means of small pins. Do not be in an hurry to take the butterfly off setting board; wait until the body has been stiff for 24 hours; a large butterfly may take a week to set, while a small blue will not take more than two days. To relax butterflies for settiing, use a tin box with several thicknesses of damp blotting paper at the bottom; place a clean piece of stout writing paper on the blotting paper and put the butterflies on that. Small butterflies take two days to relax, while large ones may take a week, but don't leave them in the relaxing box too long or they will get rotten and mould forms very quickly. Use fresh blotting paper for each batch and after damping it pour a few drops of 1 in 1,000 solution of mercury chloride on to the blotting paper. Never set a butterfly until it is really relaxed and the wings can be bent down easily.

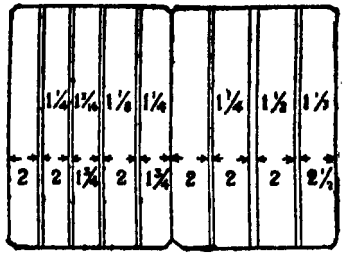



*Fig. 4.*

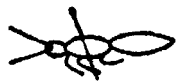


*Fig 5.*




*Fig. 6.*

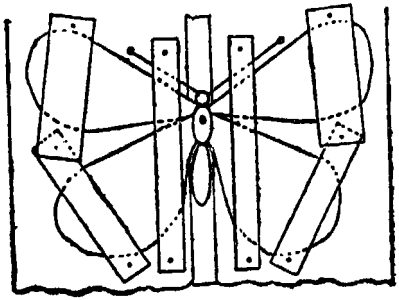


*Fig 7.*

24. To ensure freedom from trouble it is essential to have perfectly fitting store boxes; the bazaar made article will not do; for collectors who are settled, cabinets are to be preferred. I get all my store boxes made by Watkins and Doncaster of three-ply wood, outside dimensions 17½ ins. × 12 × 2½; they have proved most satisfactory. All one's labours may be lost in a short space, if poorly made boxes are used. I float the boxes in a

1 in 1,000 solution of mercury chloride and see that the special cell is always filled with powdered napthalene. In the monsoon I put a small sponge dipped in creosote at the end of a pin in each box to keep off mould, but in very damp climates, such as Rangoon, it is as well to keep the store boxes in a tin lined airtight case, with a calcium drier put in every now and then. The butterflies should be arranged in accordance with some recognized order in rows at right angles to the long side of the box and each butterfly should have a small label on the pin below the body, recording the exact locality, elevation, if in the hills, and the date of capture; I use a small triangular card, thus; so that the label can be read without lifting up the butterfly. If a body, leg or antenna comes off, replace by means of shellac solution in methylated spirit, of a viscous consistency, but be quite sure that it belongs to that particular insect; if it does not, dreadful trouble may ensue when a cabinet naturalist comes to make a detailed examination. The pins holding the butterflies should not be handled except with special pin tweezers which can be obtained from Watkins and Doncaster and the A. and N. Stores. I always ram a pin down as hard as I can into the linoleum lining of the box with these tweezers so that the butterfly cannot get loose, when travelling, and in the case of very heavy bodies I cross-pin them over, so that, if they do get loose, they cannot shake about in the box and ruin everything. For convenience of keeping the store boxes, I use cabinets of three-ply wood, made for me by Williamson, Magor & Co. of Calcutta; each cabinet takes 12 boxes, each on a shelf of its own and there is a well fitting sliding front. For travelling I use three-ply wood packing cases of such a size that the cabinet is everywhere separated from the packing case by a space of 1½ ins. and the intervening space is filled with carpets or clothes. I have taken these boxes about India by passenger train for some years and have so far suffered no loss. If mould appears, brush it off with a fine paint brush and then dip the butterfly bodily into a bath of pure petrol or rectified benzine. For butterflies set from a relaxing box that insist on springing their wings, whenever the weather is damp, apply a little shellac from the tip of a ladies' hatpin to the base of the wings underneath, press down the wings to the correct position with an open finger, heat the hatpin red hot in a candle and touch the shellac; it is a delicate operation, to be avoided, if possible; every butterfly in the De Nicéville collection in the Indian Museum has a touch of shellac at the base of the wings.



*Fig. 8.*

**25.** The best form of envelope or 'cocked hat' for taking butterflies is made as shown in the sketch. I use 3 sizes, where A × B are respectively 6½ × 4⅛, 5 × 3⅛, 3½ × 2 ins.: C = ⅔ B. The large size fits into a Jacob's biscuit tin vertically with the long side down; the medium size fits in with a short side down into a cigarette tin or Swallow and Ariel's biscuit tin with the long side down; the latter two kinds of tin takes the small sized papers with the short side down. A fairly stout, slightly absorbent paper should be used; the pages of this book would be excellent, not that I mean that they should ever be used for such a purpose, but it is the right kind of paper. Empties can be tied together, 50 in a packet; full papers are best tied in packets of 6 to 10 by means of a bit of cotton folded round them, the ends being wetted and twisted together. Given a cardboard template and a pair of scissors, a chuprassie can turn out the envelopes. Plenty of powdered napthalene should be put in the box. The butterfly should be put in the envelope with its antennæ well folded back as in the sketch. The envelopes should be cut so that the flap has no printed matter on it and thereupon should be written the name of the butterfly, the locality, elevation and date. Don't put more than one butterfly in an envelope. A pinched butterfly may ooze a little after death and it is a good thing to look inside when labelling and see that it is not going to stick to the paper. Another point to look out for is damp; butterflies fresh caught and stowed away in a box are apt to get rotten and mouldy; they should be given a chance to dry by putting the envelopes in a meatsafe or, in damp climates, in an airtight box with calcium chloride driers.

excellent book on the Ceylon butterflies by Mr. W. Ormiston. I have never visited Travancore, but a certain very peculiar Satyrid, *Parantirrhœa marshallii*, is only to be found there ; a list of the butterflies appeared in [1] vol. 6 of the journal. I spent 6 weeks at Kodai Kanal some years ago in August to October and an account of the butterflies will be found in vol. 20 ; Kodai Kanal is a most delightful hill station in the Palni Hills and deserves to be better known. On the top of the plateau not many butterflies are to be seen, but a rather special fritillary, *Argynnis hyperbius castetsi*, is only to be found there. In Tiger Sholah good collecting is to be done and a certain Satyrid, *Mycalesis oculus*, peculiar to this part of India, is to be found there in swarms. At the bottom of the plateau, just above Krishnamanaikam tope or the tope for short, any quantity of good butterflies are to be caught ; I have never seen so many butterflies in my life as on the road 2 miles above the tope on a bright day after heavy rain the night before. Coming further north is the little province of Coorg, which is an excellent district ; the late Mr. F. Hannyngton published an account of the butterflies in vol. 24. I have never visited the Nilgiris and refer the collector to a most comprehensive list published by Sir G. Hampson in the *Journal of the Asiatic Society* in 1888. The North Kanara District is again a most fertile country and a full account of the butterflies with descriptions and figures of the early stages appeared in vol. 10 of the Journal. For Poona see *P. Z.S.* 1885 ; for the Konkan *Journal*, vol. 15 ; for Matheran *Journal*, vol. 8 ; for Cutch, vol. 12 ; for Mhow *P.Z S.*, 1886. An excellent list of the butterflies of the Central Provinces was published in volumes 5 and 6 by Mr. J. A. Betham. I spent a number of years at Jabalpur and strongly recommend the neighbourhood of what are known as the temples along the Nerbada road as a good collecting ground, especially during the monsoon and in the spring ; there are a number of flowering trees which are very attractive to butterflies. Pachmarhi is a very interesting locality, where much work remains to be done ; two Satyrids are peculiar to it, but its chief interest lies in the fact that it is the meeting place for the North-Eastern and the Southern fauna ; the best localities are Jumbo Deep, Waters Meet and Dhupgarh, but there are lots of others. I believe the Northern districts of Madras would yield a number of specialized local races and, as far as I know, no one has ever worked them out.

29. For the butterflies of Karachi see vol. 2 and 3 and *P.Z.S.*, 1884. I know no list from Baluchistan ; it is an interesting district and after many efforts I got myself posted there one November but am sorry to say was transferred again the following March. I believe that Hanna and Urak are good collecting grounds, and I am sure that Ziarat would be productive A really good collection from Baluchistan would be of value to science. In the Safed Koh beyond Kohat good and little known butterflies are to be obtained. At the beginning of this century it was my good fortune to spend two years in Chitral, a most delightful and interesting country, containing a number of butterflies not met with elsewhere. The Central Asian strain is very evident, but a great number of the butterflies have developed into well defined races. I found the beautiful Ashreth valley, leading up to the Lowarai Pass most productive in May and September ; the Retreat up the Tarben Nallah and Sanitarium Hill near Drosh were good places and my collectors did well in the Utzun nallah. I spent ten days in August up the Shishi Kuh at Madaglasht and found butterflies abundant. Sanoghar is a good locality, while a visit to the Shandur Pass is worth nearly all the rest put together. This Pass is 12,000 feet above sea level and contains a lake about 1½ miles long by ½ mile wide ; in July and August the borders of the lake are carpeted with flowers and, what are known as really rare butterflies, are abundant ; above the Pass rare Parnassiids are to be encountered, while the valley between the pass and the village of Laspur swarms with butterflies. I shall always look back with the fondest recollections to my two years in Chitral. An account of the butterflies will be found in vol. 14.

30. I am afraid I can give no information regarding Kashmir or Ladak, having never visited them myself and I know of no published list of the butterflies. Rare butterflies are to be obtained at high elevations, but on the whole it does not appear to be a butterfly collector's paradise. I have spent 3 seasons in Murree, but it is a poor country for butterflies ; the Galis in the neighbourhood

[1] Unless otherwise stated references are to the *Journal of the Bombay Natural History*

26. People, who have set out to write a book on the butterflies of India, have been unfortunate. L. De Nicéville commenced *The Butterflies of India, Burma and Ceylon* in 1882 and by 1890 had completed 3 volumes dealing with the Danaids, Satyrids, Amathusiids, Nymphalids, Erycinids and Lycænids; it is the best book on the subject, though the nomenclature is out of date; copies of it are now and then advertised in the *Pioneer* for about Rs. 150. F. Moore started *Lepidopetra Indica* in 1890 and died after finishing two-thirds of it; the work has been completed by Col. C. Swinhoe; it runs to ten volumes and contains illustrations of every butterfly, but it cannot be obtained for less than £60. Col. C. T. Bingham published in 1905 and 1907 volumes 1 and 2 of the *Butterflies* in the 'Fauna of India' series and then died; the last volume is being written by Capt. N. D. Riley of the British Museum; the first two volumes were issued at a guinea each and are excellent books with coloured plates, but they are out of print; copies could probably be obtained through one of the London second-hand dealers in scientific books. Shortly before the war, Dr. A. Seitz of Germany commenced the publication of *The Macrolepidoptera of the World*, a magnificent work with short descriptions and numerous coloured plates. The palæarctic section has been completed in about 100 parts at 1*s.* 6*d.* a part; the Indo-Malayan section (Rhopalocera) is complete except for the Lycænids and Hesperids and will probably run to 150 parts at 2/-; it is extraordinarily good value for the money; I obtain my copies, in the English translation, from Watkins and Doncaster. The following books published some years ago may be obtainable from second-hand dealers: *Hesperiidæ Indicæ*, by Watson; *Revision of the Oriental Hesperidæ*, by Elwes and Edwards; *Revision of the Papilios* and *Revision of the Genus Charaxes*, by Rothschild and Jordan; *Revision of the Amblypodia group*, by Bethune Baker.

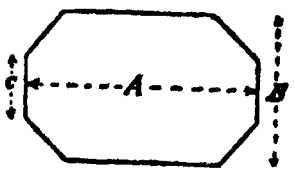







*Fig 9.*

27. I will close this article, with a few notes on where to look for butterflies and on the various localities that a collector may have an opportunity to visit. Flower gardens in general attract numbers of butterflies, but, generally, the rarer species are not to be found there. As a rule the collector must get into the jungle; beat the bushes and see what comes out; inspect flowers and especially flowering bushes most cautiously and carefully; don't neglect looking at carrion or manure; wet patches often attract butterflies in crowds; going along nallahs with running water is a paying business; males of rare species are often to be found on the tops of hills, especially towards midday. Don't try and catch a fast-flying large butterfly; you will only damage him; watch where he sits and then have at him; many butterflies, unless seriously disturbed, return again and again to the same spot and with adequate patience can be secured easily. Keep your eyes wide open as you walk along and if a butterfly gets up before you can catch him, chase him to see where he sits next and then stalk him warily; rapid movement is the one thing he can really see best and if he does not understand it, he runs away.

28. Starting with the extreme south, my personal acquaintance with Ceylon is limited to a week's visit to Kandy in September where, in Lady Horton's walk, butterflies galore are to be obtained, if you can manage to defeat the leeches, which are more persistent than any I have ever met. Here one sees the large Papilionids, *troides* and *polymnestor* in comparative abundance. But for full information regarding Ceylon I would refer the collector to an

is full of good species; Misty Hollow on the top of the Dawnas yields a few species not found elsewhere. We finished up with Upper Burma, but found we were rather too early in the year to catch the best species in that area; a few good butterflies were obtained at the top of the waterfall at Anisakan below Maymyo and in the valley above Loi-An near Kalaw; the road from Kalaw to Thazi contains several good hunting grounds. I may add that many good butterflies have come from the Ruby mine district, north of Mandalay and from the foot of the hills near Bhamo. For a visit of this sort I may say that a friend in Rangoon, who knows Burma is a very great asset; we were lucky and are eternally grateful to all our friends for what they did to make our visit a success.

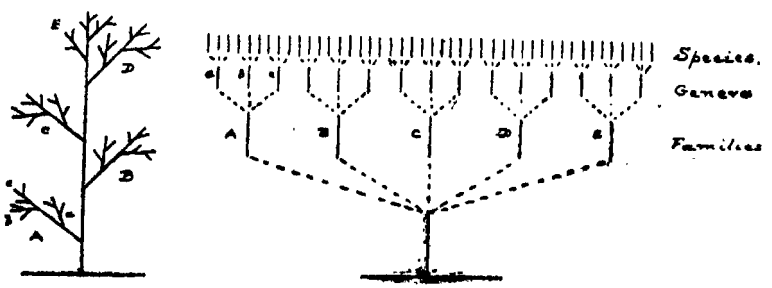
33. I may say that I have been collecting butterflies in India for 23 years and my interest increases as the years go on, my only regret being that I did not make better use of my earlier opportunities. I am a hard working individual at my profession and find that the pursuit of my hobby is the best rest possible from the cares of work, both during the periods I am at work and during the few spells of leave I have been able to obtain. It is a healthy out-door pursuit, with occupation for the evenings, and not only that, but I can look forward to plenty to do when I retire. I most strongly recommend anyone who has read through this article to take it up and can promise that the Bombay Natural History Society will give him or her every assistance; they have an excellent library, a good collection to refer to and experts, who will name anything. For those in the neighbourhood of Calcutta there is the Indian Museum to refer to and the Director of Zoological Survey will offer every assistance; there is a most complete library and the very complete DeNicéville collection. Visitors to England should inspect the National collection in the basement of the South Kensington Museum, where Capt Riley will do anything he can to help them. Don't forget that all the three institutions I have mentioned will be very glad to receive specimens especially from out-the-way localities.

## INTRODUCTION TO

## THE IDENTIFICATION OF INDIAN BUTTERFLIES

1. In the article , entitled ' Butterfly collecting in India,' I have described briefly the characteristics of Indian butterflies and how to catch and preserve them. The object of the present article is to explain in simple language how butterflies are to be identified. There are several means of doing this. Perhaps the simplest is to get an expert to do it for one ; another by comparison with museum collections or coloured diagrams and lastly by worrying them out with a text book, such as Bingham's or De Nicéville's. Museums and coloured diagrams are inaccessible to the majority of collectors except at rare intervals. Experts are few and far between and often somewhat unsatisfactory, so that the only thing remaining to be done is to work with a text book, which method, I may add is the most satisfactory in the long run. I would warn the reader that the identification of the 1,370 odd butterflies to be obtained in the Indian Empire is no easy matter even for the Museum expert and, unless the subject is studied in a methodical manner, the results are likely to be most inaccurate. Still do not be dismayed ; except perhaps for the Blues and Skippers, the names of the butterflies, that are ordinarily to be met with, can be picked up pretty quickly, while the rarer or more obscure species can be put aside until a museum can be visited or an expert consulted.

2. As a prelude to identification it is necessary to understand the system of classification in general use. Now the object of classification is to arrange the specimens being classified in the most convenient manner possible for reference. With the various species belonging to the Animal and Vegetable Kingdoms the accepted desideratum is to follow what is called the natural order of evolution, the lowly bacteria being at the beginning of the list and man, in the opinion of himself, at the end.




The system of evolution may be compared to a tree. Consider the butterflies as represented by such a tree, which has sprung in the distant past from some older tree and so on from the earliest forms of life. Imagine our tree to be composed of a number of branches, from each of which has sprung a number of branchlets and from each of which again there have grown a number of twigs. The twigs represent the various species of butterflies and the problem is to arrange them in the best order possible. The correct solution of the problem is to take the lowest branch and to lay it on the ground ; on its right is placed the next branch and so on to the last or topmost ; the branchlets are then stripped off and laid above each branch in the same order finally the twigs are placed over the branchlets. Thus we manage to arrange the twigs or species in a reasonable order. It seems very easy, but unfortunately all that is left of our tree, which has been growing for millions of years, are just a few of the twigs. In some of the other branches of Natural History the Geologist

are very much better, more especially in the spring to the end of June. Dunga Gali is well worth a visit. The bottom of the Lahur Valley, between Dunga and Khanspur is chock full of butterflies in June ; it is a fiendish place to get down into and the best method of approach is by means of a path leading down from behind the Roman Catholic Church at Khanspur. The valley below the Chief Commissioner's house at Nathia Gali along the old Kashmir Road is a good collecting ground, as is also the catchment area of the Murree watersupply and the top of Mokshipuri hill above Dunga, where a Parnassiid is to be caught. An account of the butterflies of this part of the Punjab, including Attock and Rawalpindi, etc., is to be found in *P. Z. S.*, 1886. For the Kangra District see *P. Z. S.* 1882 ; from Kulu I know of no list having been published ; for Lahore see vol. 25 of the Journal. I know of no connected account of the butterflies of Simla ; I have spent several years there and it is undoubtedly superior to Murree. Round Elysium Hill, Potters Hill and Summer Hill a good many species are to be seen, but better places are Mahasu and Mashobra, while to those who can find the leisure, a visit to Narkanda and Bagi is well worth undertaking. The late Mr. P. W. Mackinnon in vol. 11 published an excellent list of the butterflies of Mussoorie ; I spent a profitable ten days there many years ago and found the Brewery Nallah most productive in May ; the further east one goes in the Himalayas the more species are to be obtained. Kumaon is a country I am not acquainted with, but it is a most interesting part of the Empire since it is more or less the meeting place of the N.W. Himalayan and the N. E. Indian sub-areas ; a good list was published by the late Mr. F. Hannyngton in vol. 20. An investigation of the butterflies of Nepal and Western Garhwal is most desirable. For Lucknow see vol. 14.

31. The N.-E. Indian fauna proper commence with the Darjiling District or Sikkim and a good list of the butterflies was published by De Nicéville in the *Gazetteer of Sikkim*, 1894. I spent April and May here some years ago and added considerably to my collection, but a life time is required to get to the end of the species to be obtained in this prolific area. Senchal or Tiger Hill yields the magnificent *Teinopalpus* and the Teesta Valley simply swarms with butterflies. For Cachar see *J. A. S. B.* 1886 ; Khasi Hills, *T. E. S.*, 1893 ; Abor country vol. 23 ; Mishmi Hills, vol. 22 ; Manipur and Naga Hills, vols. 21 and 23. Coming to Burma there are the following lists : Chin Hills, vol. 10 ; Tharrawaddy, vol. 25 ; Shan States, *T.E.S*, 1890 ; Karen Hills, *P. Z. S.* 1891 ; Tenasserim *J.A.S.B.*, 1886 ; Tavoy, vol. 27 ; Mergui, *J. Linnean Society*, vol. 21.

32. During the winter of 1920–21 my wife and I spent a most delightful 5 months in Burma catching butterflies and I strongly recommend others to follow our example. We started off with Thandaung in the Karen hills at the end of October, but were a little late for the top of the hills ; September, October, March and April are the best months. On the top of Thandaunggyi, *Teinopalpus* is to be caught and other good collecting grounds are the circular road and the neighbourhood of the cemetery, also round the dak bangalow. The road down to Toungoo is a magnificent collecting ground more especially in the neighbourhood of Shwenyaungbyin, the forest down to Pettichaung and the neighbourhood of the latter place. In many ways the Thandaung ghat is one of the best collecting places in the Indian Empire ; it is the meeting place of the Chinese and the Malayan elements and possesses a number of species or well defined races, that do not appear to be found elsewhere. We then spent a month in the Tavoy District partly at Kanbauk, near the Heinze basin and partly at Pagaiye, 10 miles inland from Tavoy town. At Kanbauk the happy hunting grounds are the hills on either side of the wolfram mines and the mangrove swamp bordering on the Heinze basin, where the stately Hestia is to be seen sailing to and fro. At Pagaiye the hill top just beyond the village is a wonderful place for rare species, while the valley south of the river is a good collecting ground. The end of December we spent as guests of the Burma Para Rubber Company on King Island, Mergui ; the edges of the plantations, where the virgin jungle commences, were full of butterflies and more especially along the nallah at the north-east corner ; wild ageratum was in flower and attracted crowds. We then proceeded to Moulmein, up the river to Kyondo and on to Kawkareik, whence we marched over the Dawna range and stopped at Thingannyanyaung on the Siam side at the foot of the hills. The old path from this place to within a few miles of Kawkareik is a magnificent hunting ground, while the cart road up to Sukhali

can help the Zoologist to reconstruct their trees by means of fossils, but, as may very well be imagined, he can give us no assistance worth the name with our tree. Thus it may be seen that the problem of butterfly classification is extraordinarily difficult, since all we have to go upon is the study of present day conditions, our knowledge of which may be said to have attained respectable dimensions since the days of the pioneer Linnaeus at the end of the eighteenth century, but, as stated in my former paper, far more remains to be done especially in India.

3. The species is the basis of classification, but what constitutes a species is not so easy to define. Bingham in his volumes in the Fauna of India Series on the butterflies discarded the word as it was so open to misconception and used the word 'form' instead. I think it is now generally accepted that, when two so-called forms fly together and do not interbreed, they are to be regarded as species; where they do not fly together and present well-defined differences, it is a matter of opinion whether they are to be regarded as species or geographical races; usually if they are structurally similar and of similar habits, it is probably preferable to regard the two forms as races, otherwise they should be treated as species. A number of allied species are grouped for the sake of convenience into what is called a genus. Usually butterflies that differ in structure are placed in separate genera, but no hard and fast rule can be laid down, since certain obviously closely allied species differ materially from each other in this respect, as also do rarely individuals of the same species, while cases are by no means unknown where the structure of the wings on one side differs from that on the other side. Some naturalists divide genera into sub-genera, but except perhaps in the case of some of the larger and more unwieldy genera this elaboration is undesirable. Genera are further grouped into sub-families and families. A reference to the diagram in paragraph 2 will indicate how the families, genera and species correspond to the branches, branchlets and twigs of the butterfly tree.

4. Without the history of the past to aid him, it will be realized that the naturalist is groping in the dark when he tries to discover the natural order in which butterflies should be placed. All he can do is to examine the features of each species; to ascertain and tabulate the differences between them in respect of every known character; to decide what value is to be placed on the differences that he has found and finally to adopt a grouping and order that appears most natural. Amateurs are always blaming the so-called cabinet naturalist for changing the classification and nomenclature; I share their annoyance when some delver into the records of the past enforces what is called the law of priority, that is to say, changes a name because he has found that some defunct naturalist had produced some other name prior to the date on which the one in current use had been coined. But when the change is necessitated by a well founded advance in knowledge, the objection is a foolish one. The essential point to bear in mind is that no hard and fast rules can be laid down for the definition of a species, genus, or family or for the value of any particular feature; again and again a character that has been considered above reproach for defining species, etc., has turned out to be a snare and a delusion. The consensus of opinion of the best naturalists of the day is the only guiding principle that can be followed. I am afraid that the leading experts often differ a good deal, but at least the main principles of butterfly classification have now been settled.

5. Having outlined the principles of the system of classification in vogue and its limitations, it is now necessary to consider the various characters on which it is based and to explain in general terms the value that can be placed on each. Broadly the characters may be divided into two main groups, those appertaining to the early stages and those to the butterfly itself. I will pass briefly over the features that concern the early stages. My reasons are firstly that a knowledge of them is of no use to the amateur who is trying to identify his captures and secondly that they have been very fully described by Mr. Bell in his articles on the 'Common Butterflies of the Plains'; for purposes of classification their importance is paramount. The principal characters are the egg, its shape, size, its delicate ribs and whether laid singly or in clutches; the caterpillar or larva at birth and when full grown, its shape and clothing, whether of hairs, spines or tentacles, etc., the plant it feeds on and whether its habits are gregarious or not; the chrysalis or pupa, its shape and mode of

attachment. Let us pass on to the perfect insert or imago as it is technically called. The features to be studied are firstly those pertaining to the body, i.e., the legs, eyes, antennæ, palpi and genitalia; secondly those pertaining to the wing, i.e., the shape, venation cilia, markings and secondary sexual characters. I will not discuss further the genitalia, which are to be found at the end of the body or abdomen, since their examination is beyond the beginner; their study is still incomplete, but since it was commenced, a number of changes have had to be made in the arrangement of various species and genera. The remaining features should be studied carefully by the beginner: the procedure is perfectly simple, if the spirit is willing. To follow the descriptions it is as well to have at hand a freshly killed butterfly of comparatively large size so that it does not dry quickly and which has not been mauled about too much during the process of killing. A good hand lens is a necessity and to make the veins of the wings easily visible apply pure petrol liberally by means of an ordinary fine paint brush.

6. A butterfly has six legs springing from the part of the body known as the thorax and each leg consists of four parts; the coxa or hip next the body, usually rather difficult to see properly; the femur or thigh next to the coxa, usually long and directed upwards; the tibia or shank, also usually long and directed downwards; the tarsus, which is in continuation of and in line with the tibia, is composed of a number of small joints and ends in a single or double pair of claws. The tibia of the foreleg sometimes bears a central spur and on the hind leg it may be furnished with one or two pairs of movable spines. In many butterflies the forelegs are atrophied and unfitted for walking, sometimes, more particularly in the male, appearing as a brush pressed up against the body. Sometimes the legs are curiously swollen, often more or less hairy, while in some species of skippers the male has a prominent tuft of hair on each of the fore coxæ or hind tibiæ. The differences between the legs have proved of the very greatest importance in defining families and genera, perhaps more so than any other feature. In certain families the sex can be at once indicated by a glance at the forelegs.

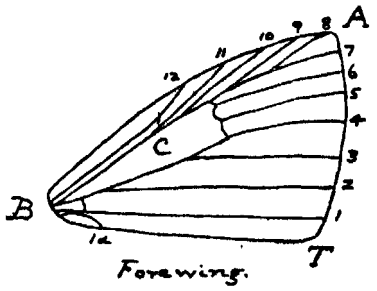
7. The eyes of butterflies are composed of an innumerable number of minute faces; they may be absolutely smooth or covered with hairs, the density and length of which varies with the species. Whether the eyes are smooth or hairy (ciliated) serves very often as a useful and easily recognized character for separating genera. Usually the eyes are black or shining golden brown, but in some of the skippers they are blood red.

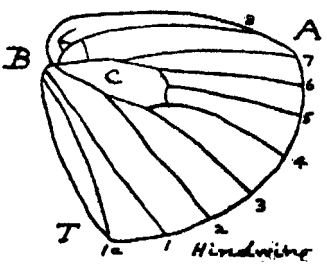
8. The antennæ are the long feelers that spring from the forehead of a butterfly between the eyes. Usually they are close together at their bases but in the skippers they are wide apart. They may be smooth or scaled, plain or chequered, or smeared with white or ochreous colouring. Their relative length is an important matter, while the shape of the club at the end of the antenna is even more important. In some species, blues principally, there is no club at all (filiform); in others there is just a perceptible thickening at the end (incrassate), usually there is a well shaped club (clavate or pyriform); the club may be hollowed out below (excavate); in many skippers there is a long filiform end to the club, which is bent over like a hook. The colour of the club varies and there may be a white band below it. The variations in the antennæ are often found to be useful in defining genera.

9. The palpi are comparatively large processes, one on either side of the head springing from the edges of the mouth and curving forwards in front of the face and eyes; between the palpi is protruded the proboscis. Each of the palpi consists of three joints, of which the first, nearest to the body, is hardly distinguishable from the stout second joint; the third joint is much narrower and varies very considerably in different species; in some it is needle like; in others entirely concealed in the second joint; sometimes very long and stout; sometimes the third joint is what is known as porrect or extended forwards horizontally or it may be vertical, known as erect. The clothing of the palpi often furnishes a useful means of separating genera; it may be hairy, bristly (or setose) or scaly

10. The beginner should master as soon as he can the venation (or neuration) that is to say, the arrangement of the veins (or ribs, nervures or nervules)

that support the wing membrane and the nomenclature that is employed to describe them. The majority of the genera are based upon venation differences.




B is the 'Base' of the wing next the body.

A is the 'Apex' and T the 'Tornus' or anal angle.

The margin of the wing from B to A is known as the 'Costa' or costal margin; from A to T as the 'Termen' or outer margin; from B to T as the 'Dorsum' or inner margin.

C is an enclosed area known as the 'Cell,' from which it will be seen that most of the veins spring or have their origin.

The veins are numbered as shown in the diagram.

The vein bordering the upper edge of the cell from the base to the origin of vein 7 is called the subcostal vein (or scv for short); that bordering the lower edge of the cell from the base to vein 4 is the median vein (mv); the veins at the end of the cell between veins 4 and 7 are the discocellulars (dcv); between 7 and 6 it is the upper dcv, between 6 and 5 the middle dcv and between 5 and 4 the lower dcv; the middle and lower dcvs may sometimes be absent.

There are normally 12 veins on the forewing (F or FW for short), but vein 8 and sometimes vein 9 also may be missing. In the majority of butterflies vein 8 and 9 and sometimes vein 10, rarely vein 6 as well, emanate from vein 7, but in the skippers all the veins spring from the cell. In some groups vein 1 (v1 for short) is forked at the base; in others there is a small vein between v1 and the mv; v1a is only present in one group. The veins along the costa are sometimes bent towards each other, occasionally touching and more rarely completely coalesced or what is called anastomosed. In one group the basal portion of v12, often also of the scv and even of the mv is swollen.

In the hindwing (H or HW) there are only 8 veins, but v1a is present in the majority of species, as is also the short curved spur near the base of v8, known as the precostal vein (pcv). In some species there is a small precostal cell formed either by a small vein between v8 and the scv or v8 and the pcv. Normally all the veins 2 to 8 spring from the cell, but sometimes vs 3 and 4 may be forked beyond the cell. The middle and lower dcvs as well as v5 may be absent or only faintly indicated.

The secondary sexual characters often cause curious distortions or swellings of the veins.

In the older text books v1 is called the submedian, vs 2, 3 and 4 the first, second and third medians; vs 5 and 6 F and v5 H the discoidal veins, v5 also being known as the radial; vs 7 to 11 F and 6, 7—the subcostals; v12 F and v8 H the costal. The dcv is sometimes called the transverse vein.

Differences of venation are of variable value in different groups; sometimes a difference will separate whole sub-families, while sometimes well marked differences are to be found between the sexes of the same species. As a rule the differences observable on the forewing are more important than those of the hindwing.

11. The shape of the wings is of often an important consideration, though here again the value of the feature is variable; sometimes the seasonal and sexual differences are remarkable. The presence or absence of one or more

tails (caudate) towards the tornus of the hindwing is usually important, though there are species, which may or may not have a tail. The tails may be very fine (filiform) or stout and fringed like the rest of the wing (ciliate). The costa may be straight or more or less highly arched and sometimes on the fore wing it is serrate or furnished with teeth like a saw, easily felt by drawing the tip of the finger along it from the tip towards the base; on the hind wing the costa is occasionally concave. The apex may be rounded, sharply pointed or produced in comparison with the rest of the wing; occasionally it is produced and the termen is concave below, when it is termed falcate. The termen or outer margin may be sinuate or wavy, straight, convex or somewhat rarely concave; crenulate or dentate, when produced at the end of each vein and concave between the veins. The dorsum may be straight or concave; sometimes in the males it is highly convex. The tornus of the hindwing is often more or less produced, but more usually it is rounded; it may be angled sharply; sometimes, especially in the blues, it is furnished with a more or less prominent lobe.

12. The cilia are the fringes, composed of two or three layers of scales that are to be found bordering the termens of the wings. They may be cinereous (ashy), white, yellow or brown; or they may be more or less chequered. Their length is variable and often more pronounced at the tornus of the hind wing, where also they may be differently coloured.

13. The differences between the markings on the wings are used to separate species, but here again a word of caution is necessary; the seasonal or sexual differences are often most extraordinary; development under identical conditions often causes the species of widely separated genera or even families to look alike and an examination of the structure is necessary. In some genera the species are so alike that they can only be separated by an examination of the genitalia or of the secondary sexual characters. The variation between the individuals of the same species is often considerable and there is a tendency to the obsolescence of the markings, while so-called sports or mutations are occasionally to be met with. There are quite a number of skippers belonging to different genera which are plain brown insects bearing no markings whatsoever. A few technical terms are used when describing a butterfly, which the beginner should master.

The interspaces between the veins are numbered after the vein next below; thus space 1 is the interspace between veins 1 and 2; the space before vein 1 is 1a and that before vein 1a, when present, is called 1b. Markings parallel to the veins are called longitudinal and those at right angles to them transverse. Markings internal to the centre of the cell are basal; those about a line through the centre of the cell are sub-basal; those about a line through the end of the cell are central. The area between the end of the cell and the termen is known as the disc and the markings about the centre of the disc are discal; those before the centre are prediscal and those after the centre are postdiscal. Markings along the termen are terminal or marginal and those just before the termen are subterminal or submarginal. Markings along the costa are costal, those about the apex are apical; those about the tornus are tornal or anal and those about the dorsum are dorsal. The names subapical, etc., are used for markings near the apex, etc.

The colour of the ground generally and of the markings is naturally a matter of importance and is often very difficult to describe in words. Often it is iridescent, presenting a different shade according to the light. Amongst the blues, it is quite impossible to define the exact shade.

The shape of the markings have to be defined. A spot may be annular, if it is just a ring enclosing the ground colour; reniform if it is kidney shaped; the words quadrate, rhomboidal, oval, elongate require no definition. If there is an eye in the centre of a spot, it is called an ocellus and the eye may be furnished with an iris; if there are two eyes the ocellus is called geminate. A band or fascia may be continuous or broken, straight or curved, regular or irregular; if broken or irregular, it is important to note at which vein or space this occurs. A band consisting of more or less conjoined spots is called macular and, if the spots are annular, it is catenulated. A line may be sinuous, or if, as is often the case, it is composed of conjoined crescents, it is lunulate or lunular. Fine lines are called strigae, and, if the wing or a portion thereof is covered with fine lines, it is described as striated,

14. The secondary sexual characters to be found in the males of certain species are of various types. Many authors separate off genera on account of differences in these characters, but unless a convenient group is formed thereby, the practice is to be deprecated. The features to be found are tufts of hair on the wings, legs or at the end of the abdomen, which may be recumbent or erectile; brands on the wings in various positions, which may consist of narrow stigmas or of large circular or oval patches and which may be covered with tufts of hair; swollen or distorted veins; pouches on the wings, pendulous or flat; the dorsum of the forewing bowed; nacreous or scaleless patches about the dorsum on the unf or the costa on the uph; pencils of hair that can be extended rom the end of the abdomen; specialized scales on the wings. Except in a few isolated cases the females are devoid of these characters; in two genera there is a corneous pouch, the shape of which varies with the species, at the end of the abdomen; and in the Blues there is a species with a peculiar tuft or close set fine hairs at the end of the abdomen. The male genitalia can be easily observed in a fresh specimen by squeezing the abdomen (body) ¼ inch from the tip and working towards the tip. This causes the genitalia to protrude. The genitalia consist of a 'Tegumen' which may have side or back hooks, and on either side there is a 'clasp,' the shape of which varies considerably even in closely allied species. In dried specimens the abdomen must be relaxed and dissected in order to observe the genitalia.

15. The description of a genus comprises the following in the order given:
Forewing (F), shape and venation
Hindwing (H), do.
Body, Legs, Antennæ, Palpi, Eyes.
A note showing how the sexes differ and how the genus differs from its allies
For a species the description should be given in the following sequence:
Above, general colouring; cilia.
Upperside forewing (upf), shape and markings.
Upperside hindwing (uph), do.
Below, general colouring; cilia.
Underside forewing (unf), shape and markings.
Underside hindwing (unh), shape and markings.
Colour of Body, Legs, Antennæ and Palpi.

The male (♂) is described first and then the female (♀). When seasonal variation occurs, the wet season form (wsf) is followed by the dry season form (dsf). Individual and geographical variation is then described, ending with a comparison with its allies and a note on its habits, time of appearance, etc. At the end of the description the expanse should be stated, preferably in millimetres; the expanse of a butterfly is measured from the centre of the thorax to the extreme tip of the forewing and the figure so obtained is doubled.

A butterfly scientifically bears two names, that of the genus followed by that of the species, thus *Papilio polytes*; if the individual belongs to a particular geographical race a third name is added, thus *Papilio polytes romulus*, the first named race (name type or nymotypical form) being *Papilio polytes polytes*. Where a variety has to be specified, a further name is added with the prefix var. or v., and if pertaining to one sex only, the sex signs also given, thus *Papilio polytes romulus* ♂ v. *cyrus*. After the last name it is usual to add the abbreviated name of the describer, thus *Papilio polytes*, L. (=Linnaeus). Some authors assign Latin names to seasonal forms, but the suffixes wsf and dsf, seem more suitable. Casual varieties and aberrations have been named, but the practice is undesirable, while the naming of slight varieties leads to endless confusion. Dimorphic forms and strongly marked varieties of reasonably frequent occurrence alone seem to be worthy of names as varieties.

16. The foregoing sketch will, I hope, enable the beginner to follow the text books on Indian butterflies, viz.—

*The Butterflies of India, Burma and Ceylon*; by Marshall and De Nicéville.

*Lepidoptera Indica*; by Moore and Swinhoe.

*Butterflies*, Fauna of India Series, by Bingham.

*The Macro-lepidoptera of the World*: by Seitz; the Indo-Malayan Section by Fruhstorfer and Jordan.

## KEYS TO FAMILIES OF INDIAN BUTTERFLIES

Aa (I). F one or more veins emanate from v7. Antennæ approximate at the base. Hind tibiæ with only one pair of spurs.
Ab (H). H with precostal vein (except a few Pieridæ).
Ac (Ca). Forelegs fully developed in both sexes.
A (B). H v1 a absent (present in all other families).

PAPILIONIDÆ. *The Swallowtails.*

B (A). H v1 a present.

PIERIDÆ. *The Whites.*

Ca (Ac). Forelegs not perfect in both sexes.
Cb (C). Forelegs imperfect in both sexes (except in two genera).
Cc (Ea). F and H cells closed, dcvs present.
C (D). F v1 runs into the mv at the base.

DANAIDÆ. *The Danaids.*

D (C). F v1 runs into base free of the mv.

SATYRIDÆ. *The Browns.*

Ea (Cc). H cell open, dcvs absent (slenderly closed in a few cases).
F (F). Palpi small, narrow and sharp in front.

AMATHUSIIDÆ. *The Amathusiids.*

F (E). Palpi large, broad, rounded in front. F cell usually open.

NYMPHALIDÆ. *The Nymphalids.*

G (Cb). Forelegs imperfect and brush-like in ♂; developed for walking in the ♀.

ERYCINIDÆ. *The Erycinids.*

H (Ab). H no precostal vein. Forelegs perfect.

LYCAENIDÆ. *The Blues.*

I (Aa). F all veins from the cell or base. Antennæ wide apart at the base and often with a hooked club. All legs perfect.

HESPERIIDÆ. *The Skippers.*

*Notes.*—I have followed Seitz in adopting the above order and names; older English authors place the Papilionidæ and Pieridæ after the Erycinidæ; treat the Danaidæ, Satyridæ, Amathusiidæ and Nymphalidæ as sub-families of one family, the Nymphalidæ; call the Amathusiidæ, the Morphidæ, and the Erycinidæ, the Nemeobiidæ or Riodinidæ. The Hesperiidæ are sometimes treated as a separate sub-order under the name Grypocera, the remainder of the butterflies being the Rhopalocera.

De Nicéville and Bingham give full descriptions of each species but very few illustrations; they both give keys, whereby the patient student can work out the identification of his captures. Moore gives complete descriptions and a coloured figure of every insect, but no keys. Fruhstorfer gives the briefest of brief descriptions, no keys, but nearly every species is illustrated. It will be found that the nomenclature adopted by the above authors differs very materially, partly because their ideas on classification differed, partly because of the progress of the knowledge in the interval and partly because errors in names required rectifying. When somebody catches a butterfly that he cannot identify and thinks rightly or wrongly that he has a species no one has given a name to, if he considers he is competent enough to do so, he describes it and gives it a name. He is supposed to describe a particular specimen, which is designated the type and if he would only lodge the type in the British or other first class museum, all would be well, since any mistakes he may have made can be rectified in due course. But if, as is so often the case, he keeps the type in his own collection, it eventually gets lost and then the trouble begins; reams may have to be written as to what he really meant, while others catching the same insect may describe it as new. If perchance a name has been used for a species that had already been used in the same genus, then by the rules of priority the name cannot stand and another name has to be coined, but, if later on the species is put into another genus, the old name has to be dug out; and so the game goes on. In the case of genera the rule is that you must not use a name that has been used for a genus already in any of the realms of Zoology, so that the game of changing names is almost as exciting as in the case of species. Owing to our nation not being the only pebble on the beach, the institution of a strict co-ordinating authority is hopeless, though efforts have been made in that direction with some success. Discarded names are called synonyms and many species have collected quite a number of them.

17. In order to further the study of the Indian butterflies and to popularise it, what appears to be needed is a cheap publication, whereby identification may be effected with reasonable facility. Full descriptions bore the ordinary amateur, while the really earnest student can refer to the text books; good keys giving the main differences are more acceptable to the majority. Coloured plates are very expensive, but well executed photographs carry one a long way and have the merit of being accurate, which is more than can be said always of hand coloured plates. The following series of keys are accompanied by thirty-two plates, containing sufficient illustrations to enable a beginner to spot the genus to which a particular insect belongs, after which the key will enable him to discover the species. The photographs were taken by Mr. Albert Jeakins of Simla, who being a naturalist as well as a photographer, has taken the very greatest pains in carrying out the work. An attempt has been made to give trivial names to the species, not the races, since many a beginner will not face the Latin names; I have made an attempt to use the names prevailing at schools in the Hills; Mr. O. C. Ollenbach has assisted me in selecting the names.

18. In order to shorten the work, full use has been made of abbreviations. Where I cannot personally vouch for a locality, I have added the authority in brackets. The families are lettered A, B, etc.; genera are numbered serially within the family and species serially within the genus; a particular butterfly can then be referred to as say B14-3. It will be seen that at the beginning of each paragraph in the keys there is a number followed by a number in brackets (in the families key letters in place of numbers), thus 1a (6a), if the description under 1a corresponds, pass on to 1b, if it fails go on to the number in brackets 6a. The reason for using the order 1a, 1b—1 is to preserve the numbering of the species or genus as the case may be, which always follows a number without the small letter suffix. Geographical races are distinguished by Greek letters. The number in brackets after the specific name indicates the expanse of the butterfly in millimetres. C, VC, R, NR, VR after the locality indicates whether the species is common, very common, rare, not rare, very rare. The number under each figure in the plates is that given in the key, where a star indicates that the butterfly has been figured. Do not expect perfection; owing to the variation that occurs, the construction of foolproof keys is impossible; remember too that the aim of the work is cheapness.

**A. Papilionidæ.—The Swallowtails. Genera Key.**

1a (12a). F v9 present. H with precostal cell.

1b (10a). F v9 from about upper end of cell. F spur near base from mv towards v1.

1c (9). Palpi short, pressed against face.

1d (8). F v9 strongly bowed down at origin, not near or parallel to v10.

1e (3a). H v8 short, not nearly as long as v1 F. Larva on Aristolochia and is covered with many large hairy tubercles. Thorax below red.

1 (2). F v11 long, from opposite the origin of v2. Large, heavy body, mostly yellow. Head black with narrow red collar. H more or less shining yellow. ♂ with anal valves and scent organ H well developed.

*Troides, Hub.—The Birdwings.* (Plate 1). (= *Ornithoptera, Bdv*).

2 (1). F v11 from opposite the origin of v3. Head red.

*Byasa, M.—The Red-bodied Swallowtails.* (Plate 1). (= *Tros, Barbutt*: *Menelaides, Hub*: *Panosmia, W.M. and DeN.*: *Balignina, Losaria, Pangerana, M*).

3a (1e). H v8 as long as v1 F. Larva never on Aristolochia. Except for A 4/4 head and body never red.

3b (5a). F v11 free from v12. ♂ no scent organ; anal valves prominent.

3 (4). Larva with many spiny tubercles; pupa stick like. H v7 either very near v8 or v6, F v2 bowed. Tailless. Head white spotted; abdomen below black and white spotted.

*Chilasa, M.—The Mimes.* (Plates 1 and 2). (= *Cadugoides, Isamiopsis, M*: *Euplœopsis, Menamopsis, DeN.*).

4 (3). Larva practically smooth. H v7 about midway between v8 and v6: dcv 7-6 straight or nearly so. F v2 rarely bowed.

*Papilio, L.—The Black-bodied Swallowtails.* (Plates 2-5). (= *Achillides, Lærtias, Iliades, Orpheides, Hub*: *Araminta, Charus, Harimala, Sadengia, Sainia, Sarbaria, Tamera, M.*: *Pangeranopsis, Panosmiopsis, WM. and DeN*: *Mimbyasa, Evans*).

5a (3b). F v11 anastomosed to v12. ♂ anal valves prominent and scent organ usually present. Antennæ scaled above. Pupa four-sided; larva smooth. Abdomen black striped below.

5b (7). H tailed or produced; v7 midway between v8 and v6.

5 (6). H tail long, slender, white edged. Above mostly white or pale greenish, with black stripes F.

*Pathysa, M.—The Swordtails.* (Plate 5). (= *Deoris, Pazala, M.*).

6 (5). H tail short, stout and black or absent. Apex F and tornus H much produced. Mostly black with green bands and spots.

*Zetides, M.—The Bluebottles and Jays.* (Plate 5). (= *Chlorisses, Swain*: *Zetides, M*).

7 (5b). H. rounded, tailless; v7 much nearer v8 than v6.

*Paranticopsis, WM. and DeN.—The Zebras.* (Pla e 6).

8 (1d). F v9 straight at origin, close to and parallel to v10; v11 free. F highly falcate. Claw of tarsi with a tooth in or behind the middle. With scent organs and anal valves.

*Meandrusa, M.—The Gorgons.* (Plate 6). (= *Dabasa, M*).

9 (1c). Palpi long, porrect. F v6 much nearer v7 than v5. No scent organ or anal valves.

*Teinopalpus, Hope.—The Kaiserihind.* (Plate 6).

10a (1b). F v9 from well beyond end cell. No anal valves.

10 (11). F v9 out of v8, which meets v7 at end cell. H cell very small. Antennæ longer than cell. H produced to a long tail. F outer half clear wing.

*Leptocircus, Swain.—The Dragontails.* (Plate 6).

11 (10). F v9 and v8 out of v7; v6 and v7 approximate.

*Armandia, Blanch.—The Bhutan Glory.* (= *Bhutanits, Atk.*).

12 a (1a). F v9 absent; no spur from mv. H no precostal cell.

12 (13). H v8 shorter than v1 F. F v10 and 7 from a point.

**A. Papilionidæ.—The Swallowtails. Genera Key—*contd.***

Antennæ club short, abrupt and flattened.
*Hypermnestra, Men.—The Desert Apollos.* (Plate 6).
13 (12). H v8 longer than v1 F. F v10 and 7 well separated at origin. Antennæ club gradually elongate and rounded. ♀ with horny pouch.
*Parnassius, Lat.—The Snow Apollos.* (Plate 6). (= *Kailasius, Koramius, Tadumia, M*).

## KEY TO SPECIES

**A1. Troides.—The Birdwings. (Plate 1).**

1a (5). ♂ upf no yellow. 1b (3a). H space 1 black.
1 (2). H cell mostly black.
*darsius, Gray.* (140–160). The Ceylon Birdwing, Ceylon, C.
♂ v. *cambyses, Ehr.* With discal spots H. R.
2 (1). H cell mostly yellow.
*minos, Cr.* (140–190). The Malabar Birdwing, South India. NR.
3a (1b). H space 1 mostly yellow in ♂; ♀ at least a yellow spot in middle; cell mostly yellow.
3 (4). ♂ all space 7 H yellow; ♀ base space 1 black.
*æacus,* Fd. (150–170). The Golden Birdwing. Garhwal—Burma, NR. (= *rhadamanthus, Auct.*).
4 (3). ♂ space 7 H black at base; ♀ base space 1 yellow.
α. Larger and paler.
*helena cerberus, Fd.* (140–170). The Common Birdwing. Orissa, Sikkim—Burma, C.
*v. *cumagos, Jord.* Upf whiteish vein stripes absent. NR. (= *azelia, gypsothelia, Jord.*).
β. Smaller and darker.
*helena heliconoides, M.* (130–160). The Andaman Birdwing. Andamans, C.
♂ *v. aphnea, Jord.* Upf with whiteish vein stripes. R. (= *rhyparia, Jord.*).
5 (1a). ♂ upf prominent yellow (♀ white) area about end cell.
*amphrysus ruficollis, But.* (130–160). The Malay Birdwing. Mergui. VR.

**A2. Byasa. The Red-bodied Swallowtails. (Plate 1).**

1a (5a). Tailless. ♂ anal valves and scent organ prominent. No red markings. Abdomen below red, black banded (except No. 4).
1b (3a). Uph no pale area.
1 (2). ♂ uph dorsal fold rounded and lower half scent area white. Upf pale streaks visible in cell. ♀ above brown. Abdomen broad white stripe at side and head pinkish white.
*aidoneus, Db.* (100–120). The Lesser Batwing. Garhwal—Shan States. R.
2 (1). ♂ uph dorsal fold square and scent area only with a small white patch. ♀ shining black. Abdomen red stripe at side and head red.
α. ♂ unf no white stripes before margin. ♀ pale area near tornus upf and stripes dusted over and suffused.
*varuna astorion, Wd.* (90–130). The Common Batwing. Kumaon—Tavoy, NR.
β. ♂ unf white stripes before margin. ♀ unf pale tornal area pure white and sharp defined.
*varuna varuna, White.* Mergui—S. Burma. R.
3a (1b). Uph outwardly with a pale area.
3 (4). Uph ♂ submarginal white patches space 2–4; ♀ large white discal area from dorsum to space 5.
**zaleucus, Hew.* (80–110). The Burmese Batwing Shan States—S. Burma. NR.
♂ *v. punctata, Evans.* White area black spotted. R.
4 (3). Uph outer half blue grey with black spots. Body yellow, black spotted. Head white. ♂ dorsal fold uph white, with red margin.
*sycorax, Gr. S.* (110–130). The Whitehead Batwing. Mergui. VR.
5a (1a). Tailed.
5b (8a). Tail long, spatulate, with very narrow neck. ♂ anal valves prominent, open above; scent organ ill developed.
5c (7). Tail black.

**A2. Byasa.—The Red-bodied Swallowtails. (Plate 1)—*contd.***

5 (6). Uph no white spots; a rather pale red discal area from space 1-4. Head black; outer half abdomen all yellow.

*neptunus, Guer.* (100-120). The Yellow-bodied Clubtail. Tavoy—S. Burma. VR.

6 (5). Uph with white spots. Abdomen red and black; head red. F long and narrow. H outer half of cell white.

α. Uph white spots beyond cell extensive and complete.

*coon cacharensis, But.* (100-120). The Common Clubtail. Assam. NR.

β. Uph white spots more restricted.

**coon doubledayi, Wall.* Burma, C.

γ. Uph red spots near margin in space 3 united.

*coon sambilanga, Doh.* Nicobars. R.

7 (5c). Tail red. Uph no discal spots in 3, 4 or 7.

*rhodifer, But.* (120-140). Andamans. The Andaman Clubtail, NR.

8a (5b). Tail gradual, neck not narrow. Head and abdomen below mostly red.

8b (11a). ♂ no anal valves and scent organ ill developed. Unh complete row 7 red spots.

8 (9a). Uph outer half at least of cell white and complete row of large discal spots beyond.

α. Upf outer white area prominent; no black stripes in 2 and 3; pale stripes do not enter cell.

*jophon jophon, Gray.* (110-130). The Ceylon Rose. Ceylon. R.

β. Upf all black stripes complete and pale stripes enter cell.

*jophon pandiyana, M.* (100-130). The Malabar Rose. S. India. R.

9a (8). Uph at most a small white spot end cell.

9 (10). Uph discal and submarginal row red spots. Upf prominent white central and apical band.

*hector, L.* (90-110). The Crimson Rose. Ceylon—Bengal. Andamans. C.

10 (9). Uph white discal spots in 2-5, some of which may be absent.

α. Uph usually white spot end cell; discal spots prominent and pressed up against cell. Unh discal spot in 1 white.

*aristolochiæ ceylonicus, M.* (80-110). The Common Rose. Ceylon. VC.

β. Uph rarely spot in cell; unh spot in one mostly red. Typical form with spots remote from cell and incomplete.

*aristolochiæ aristolochiæ, F.* India. VC.

*v. diphilus, Esp.* Discal spots complete and against cell.

γ. Discal spots often red edged. Unh discal spot in 1 often red. Only *diphilus* form seems to occur.

*aristolochiæ goniopeltis, Roth.* Burma. Andamans. VC.

δ. Typical form with the discal spots reduced to 2 obscure ones in 1 and 2, *diphilus* form also occurs.

*aristolochiæ camorta, M.* Nicobars. VC.

11a (8b). ♂ with anal valves and scent organ well developed. Uph no white in cell.

11b (17a). Uph with discal white spot or spots.

11c (14a). Uph white discal spots 2-4 or 5 and submarginal spots 2-5.

11 (12a). Tail black. Uph submarginal spots in 4 and 5 white and that in 5 often joined to discal spot. Unh submarginal spot in 6.

*adamsoni, Gr. S.* (90-110). Adamson's rose. Shan States—Dawnas. R. (= *mineroides, El.* and *DeN.*)

12a (11). Tail red tipped.

12 (13). H cilia black from tornus to v3.

ρ. ♂ uph no discal spot in 5. ♀ spot in 5 small, only halfway to v6.

*latreillei latreillei, Don.* (110-130). The Rose Windmill. Garhwal—Sikkim. R.

β. Uph white spot in 5 reaches v6, but does not fill base of space 5

* *latreillei kabrua, Tyt.* Assam—N. Burma. R.

13 (12). H cilia red from tornus—v3, uph discal white spot in 5 large and

*polla, DeN.* (110-130). DeNicéville's Windmill. Assam—N. Burma. VR.

14a (11c). Uph very large discal but no submarginal spot in 5; those in 2 3 and 4 prominent.

14 (15a). H tail black. Uph large white spot in 6 and small one in 7.

**A2. Byasa.—The Red-bodied Swallowtails. (Plate 1)—*contd.***

*nevilli, WM.* (100-120). Nevill's Windmill. Assam—S. Shan States. VR. (= *chentsong, Ob*).

15a (14). H tail red tipped.

15 (16). Uph submarginal spot in 4 red; no spot in 6. Unh small discal white spot in 4, often visible above.

α. Below body blacker.

* *philoxenus philoxenus, Gray.* (110-130). The Common Windmill. Kashmir—Nepal. NR.

β. Below body almost entirely red. Larger.

*philoxenus polyeuctes, Ob.* (120-140). Sikkim—Burma. C. (= *hostilius, letincius, Fruh*).

16 (15). Uph submarginal spot in 4 mostly white.

α. Uph nearly always white spot in 6. ♀ uph discal white spot in 1 above brown; outer half H black.

*dasarada ravana, M.* (100-130). The Great Windmill. Kashmir—Kumaon NR.

β. Uph very rarely discal white spot in 6. ♀ uph no discal white spot in 1-2; above entirely black but females of the *ravana* type occur as rare varieties.

*dasarada dasarada, M.* (120-140). Sikkim—Assam. NR.

γ. Wings narrower. Unh paler from cell to costa and spot in 6 absent.

*dasarada barata, Roth.* (120-140). Burma R.

17a (11b). Uph no white discal spots.

17 (18). Above unmarked. Unh tail red tipped; red discal spots from 1-2 and submarginal spots to 5, which may show very obscurely above.

*crassipes, Ob.* (110-120). The Black Windmill. Manipur—S. Shan States. VR.

18 (17). Tail black. Unh submarginal red spots to 6.

α. Uph complete row nearly white submarginal spots 2-6.

*alcinous pembertoni, M.* (100-120). Pemberton's Chinese Windmill. Sikkim—Bhutan. VR.

β. Uph prominent black submarginal spots and small red submarginal spot in 2. ♀ pale brown, obscure traces of submarginal red spots 3-6.

*alcinous tytleri, Evans.* Tytler's Chinese Windmill. Manipur, Chin Hills. R. (= *impediens, Tyt.*).

**A3. Chilasa.—The Mimes. (Plates 1-2).**

1a (4a). H v7 twice as far from v8 as from v6. End cell very rounded.

1b (3). Above pale blueish or grey with black veins.

1 (2). Upf black bar across cell in continuation of v5. Uph markings between margin and cell incomplete.

α. Small. Uph margin dark chestnut, discal and postdiscal spots complete.

*agestor govindra, M.* (83-100). The Tawny Mime. Kashmir—Kumaon, NR.

β. Large. Uph margin bright chestnut, postdiscal spots incomplete. Paler and bluer above.

* *agestor agestor, Gray* (100-120). Sikkim—N. Burma. NR (= *cresconius, senchalus, Fruh.*).

2 (1). Upf no black bar across cell. Uph prominent yellow tornal spot.

α. Unh costal margin dark up to scv as termen.

*epycides epycides, Hew.* (70-90). The Lesser Mime. Sikkim—N. Burma. R. (= *curiatius, Fruh.*).

β. Unh costal margin pale, terminal dark area ends at apex.

* *epycides hypochroa Jord.* Shan States—Karen Hills. R.

3 (1b). Upf dark brown, blue spot end cell and blue discal stripes. Uph brown, prominent tornal spot.

α. Upf discal blue stripes nearly to termen. Uph and unh usually no submarginal white markings.

* *slateri slateri, Hew.* (80-100). The Blue-striped Mime. Sikkim—N. Burma. R. (= *jaintinus, Fruh*).

β. Upf stripes narrower and shorter. H usually with submarginal white markings.

*slateri marginata, Ob.* Shan States—Karen Hills. R

**A4. Papilio.—The Black-bodied Swallowtails. (Plates 2-5)—*contd.***

♀ *v. butleriauus, Roth.*. NR. (=*rhetenorina, Jord.*).

* ♀ *v. alcanor, Cr.* NR.

3 (1.2). ♂ tailless ; black, uph a broad discal blue band. ♀ tailed, rather as *alcanor*, but tail red and white tipped.

*mayo, Atk.* (120–150). The Andaman Mormon. Andamans, NR. (=*decurio, Niepelt.*).

4a (1b). H long and narrow, width not more than half length.

4 (5). ♂ ♀ alike ; tail pink or white tipped. Uph elongated discal white spots in 3–4 or 2–5 and more or less complete row red lunules. Upf covered small whiteish scales. Head above and abdomen below red.

α. Uph tail red tipped. Unh red tornal area in 1 continued to base.

*bootes janaka, M.* (110–120). The Tailed Redbreast. Garhwal—Abor. R. (= *sikkimensis, W. M. : kala, Tyt.*).

β. Uph tail white tipped and usually only 2 discal spots. Unh red tornal area not continued to base.

* *bootes bootes, Wd.* Assam. R. (= *echo, Ehrman.*)

γ. As last but uph 4 discal white spots.

*bootes mixta Tyt.* Manipur and Nagas. R.

5 (4). ♂ tailless ; black ; uph blue scaled and tornal ocellus white edged. ♀ with very broad tail ; upf red streak base cell ; uph a large discal white patch and a prominent series double red submarginal lunules, extending to tail.

* *rhetenor, Wd.* (110–130). The Redbreast. Kumaon—Burma. NR. (=*publilius, turificator, Fruh.*).

♂ *v. leucocelis. Jord.* Upf white tornal patch. NR.

6a (1a). Below no basal red markings.

6b (8a. 27a). Unh cell all black, not sprinkled yellow or white scales. Sexes alike. Uph blue scaled : tornal red ocellus. Tailless.

6 (7). Unh red submarginal lunules only at apex and tornus, with some discal blue scaling between. Upf no blue scaling : streaks of white scaling on either side of veins. ♂ uph prominent white streak from base under v8.

α. ♂ uph blue scaling in 6 and 7. Unf darker. ♀ browner.

*protenor protenor, Cr.* (100–130). The Spangle. Kashmir—Kumaon. C.

β. ♂ uph blue scaling 2–7.

* *protenor euprotenor, Fruh.* (110–140). Sikkim—N. Burma. C.

The DSF is considerably smaller than the WSF.

7 (6). Unh red submarginal lunules complete. Upf blue scaling. ♂ upf with woolly stripes on vsl, 2 and 3.

α. Head yellow and body buff at the sides. Uph no red lunules in 2 and 3.

*elephenor elephenor, Db.* (110–130). The Yellow-crested Spangle. Assam VR.

β. Head and body black.

*elephenor schanus, Jord.* The Black-crested Spangle. S. Shan States. VR.

8a (6b. 27a). Unh basal area including cell sprinkled white or yellow scales.

8b (16a). Above prominent green or blue bands or patches and sprinkled green scales on the black areas. Tailed.

8c (13a). Above no broad green band ; may have a narrow pale or green band upf and a broad green subapical patch uph.

8 (9a). Uph green patch not prominent. Above green scaling dense. Uph submarginal green lunules. ♂ upf woolly streaks on vs 1, 2 and 3. Upf pale discal streaks short.

*bianor gladiator, Fruh.* (110–130). The Chinese Peacock. Burma. VR.

9a (8). Uph green or blue patch prominent.

9b (11a). Uph inner edge of green patch more or less straight, but ragged and rather diffused, ♂ upf woolly streaks as in last. DSF much smaller than WSF.

α. Upf green band prominent to apex. Unf pale discal streaks obscure and do not enter cell.

*polyctor polyctor, Bdv.* (90–120). The Common Peacock. Chitral, Kumaon. C. (= *peeroza, M.*).

β. Upf green band present or absent, but rarely to apex. Unf pale streaks long, enter cell and reach termen.

*polyctor ganesa, M.* (120–130). Sikkim—N. Burma. C. (=*triumphator, Fruh.*).

**A3. Chilasa—The Mimes (Plates 1-2)—*contd.***

γ. Upf blue stripes only half way to termen. H always with submarginal white spots.

*slateri tavoyana, But.* S. Burma ; R. (=*cnephas, Jord*).

4a (1a). H v7 very much nearer 8 than 6 ; dcv 7-6 bowed.

4 (5). Unh no row yellow terminal spots. Upf submarginal whiteish spots in a regular row. Dark brown ; upf blue shot. Typical form with blueish spots upf and white submarginal spots uph. Dimorphic form with upf end cell white and white discal spots ; uph basal half white, black veined.

*paradoxa telearchus, Hew.* (120-150). The Great Blue Mime. Assam—Burma R.

* *v. danisepa, But.* VR.

5 (4). Unh prominent row yellow marginal spots. Upf submarginal white spots irregular, spot in 4 shifted in. Typical form dark-brown with white spots ; dimorphic form with pale stripes.

α. Typical form rather pale with very small postdiscal spots. Dimorphic form yellowish brown, markings wide.

*clytia lankeswara, M.* (90-120). The Common Mime. Ceylon. NR. (= *clytioides, M.*)

*v. dissimila, Evans.* NR.

β. Typical form dark brown with prominent postdiscal spots of which the apical one may be prolonged inwards and there may be traces of a discal series. The dimorphic form has broad cream white markings typically, but in N.-E. India there is much black dusting causing the pale markings to be restricted. There is a third intermediate form with the forewing as in the first form and the hindwing with pale stripes nearly as extensive as in the second form.

* *clytia clytia, L.* India. NR. (= *panope, Esp.*: *casyapa, M. lanata, Fruh.*).

* *v. dissimilis, L.* S. India—N. W. Himalayas. Pale form. NR.

*v. dissimillima. Evans.* N. E. India—Burma. Dark form. NR.

*v. commixtus, Roth.* N. E. India. VR.

γ. First form normally with the apical spots upf enlarged into long white streaks. There are two well marked varieties—first var upf white spots absent or replaced by black spots, which may be white centred, and uph with pale streaks sometimes as extensive as in *commixtus*. Second var above dark indigo blue with obscure dusky postdiscal spots upf and uph pale streaks prominent. Dimorph *dissimillima*.

*clytia onpape, M.* Burma. NR.

*v. janus, Fruh.* R.

*v. papone, Wd.* R.

δ. Second form only. Larger ; upf postdiscal spots much enlarged and uph prominent yellow marginal spots.

*clytia flavolinbatus, Ob.* (120-130). Andamans. NR.

**A 4. Papilio—The Black-bodied Swallowtails (Plates 2-5).**

1a (6-a). Below prominent red basal markings. Unh cell never sprinkled pale scales.

1b (4a). H width greater than half length.

1 (2.3). ♂ ♀ upf pale blue submarginal band ; uph outer ⅓ blue with two rows black spots. Tailless.

♂. ♂ upf blue band short, not above v4. ♀ blue areas strongly tinged yellow.

*polymnestor parinda, M.* (120-150). The Blue Mormon. Ceylon. NR.

β. ♂ upf blue band to v5 and to v7 in ♀.

* *polymnestor polymnestor, Cr.* S. India. NR.

2 (1.3). ♂ above blue scaled on a black ground on either side of each vein beyond cell ; unh usually red lunules at tornus, which may be replaced by grey or may be extended to costa ; tailless. ♀ in 3 forms. 1st (typical) tailless ; uph a large white discal area. 2nd tailles, more or less as ♂ above; unh a white streak along dorsum. 3rd tailed, body yellow ; uph usually a white spot end cell and a more or less complete row of discal white spots.

* *memnon agenor. L.* (120-150). The Great Mormon. Sikkim—Burma, Nicobars. C. (=*depelchini, Robbe.* ; *phœnix, Dist.* ; *polymnestorides, M.* ; *primigenius, Roth.* ; *androgeos, Cr.*)

**A4. Papilio.—The Black-bodied Swallowtails (Plates 2-5)—*contd.***

γ. Upf small white spot at tornus.

*ployctor significans, Frnh.* S. Burma. NR. (=*porphyria, Jord.*).

10 (9). Upf inner edge green patch curved and sharp defined. Unf pale discal streaks prominent, but never reach end cell. ♂ no woolly streaks.

α. Unf discal pale streaks not to termen. Large; uph green patch large, from v3-8 and enters cell.

*paris tamilana, M.* (120-140). The Tamil Peacock. South India. NR.

β. Unf pale streaks to termen.

*paris paris, L.* (90-120). The Paris Peacock. Orissa. Kumaon—Burma. C. (=*splendorifer, Frnh.*).

11α (9b). Uph blue patch much longer in 6 than in 5; red submarginal lunules prominent. ♂ no woolly streaks.

11 (12). Upf green postdiscal band. Uph blue patch enters cell and reaches termen in 6.

α. Unf pale discal streaks do not enter cell.

*arcturus arius, Roth.* (110-120). The Blue Peacock. Kashmir—Kumaon. NR.

β. Unf pale streaks enter cell. Uph blue patch in 6 broken.

* *arcturus arcturus, Wd.* (120-130). Nepal—Burma. NR.

12 (11). Upf narrow pale yellow discal band.

*krishna, M.* (120-30). The Krishna Peacock. Sikkim—Burma. NR.

13a (8c). Upf and uph broad green discal band.

13 (14a). Upf green band does not enter cell. Tail green tipped. ♂ with woolly streaks along vs 1, 2 and 3.

* *crino, F.* (80-100). The Common Banded Peacock. Ceylon. S. India—Bengal. NR. (=*fruhstorferi, Rob.*).

♂ v. *montanus, Fd.* ♂ without the woolly streaks. R.

14a (13). Upf green band enters cell. Uph yellow spot at apex. Tail black. ♂ no woolly stripes.

14 (15). Upf green band broad and broadly enters cell. Uph green discal area large, circular, enters cell.

*buddha, Wd.* (90-100). The Malabar Banded Peacock. S. India. R.

15 (14). Upf green band narrow, just enters end cell. Uph no green in cell; 2 apical spots and tornal ocellus prominent.

*palinurus, F.* (90-100). The Burmese Banded Peacock. S. Burma. R.

16a (8b). Above no green or blue bands, patches or scales.

16b (19a). Tailless. Unf and often upf a prominent white spot end cell. Above black, covered yellow scales.

16 (17a). ♂ ♀ upf complete series equal sized submarginal white spots in regular row. Upf postdiscal white spots short and submarginal series prominent.

*dravidarum, WM.* (80-100). The Malabar Raven. S. India. R.

17a (16). ♂ upf no white submarginal spots.

17 (18a). ♂ uph complete series equal sized submarginal white spots 1-6, spot in 7 smaller; submarginal row prominent. ♂ upf row of very small submarginal spots, decreasing to specks in 5-7, 8 larger; uph as ♀, spots dusky and decreasing to apex.

* *mahadeva, M.* (80-120). The Burmese Raven. Shan States—S. Burma. R. (=*maheswara, Frnh.*).

18 (17). ♂ uph large discal white spots 4, 5, 6 to end cell and spot in 7 half length of spot in 6. ♂ upf with submarginal spots.

α. ♂ uph and unh discal spots only 4-7, 4 small, no submarginal spots. ♀ upf submarginal spots small; obscure discal grey streaks 1-4; uph all spaces and outer half cell dusky grey up to the dark submarginal band, bearing white spots.

* *castor polias, Jord.* (100-130). The Common Raven. Sikkim. NR.

β. ♂ same; unh often discal spot in 3 and may be a complete row; uph traces of submarginal spots at apex. ♀ discal grey streaks absent; uph streaks white.

*castor castor, Wd.* Assam—N. Burma. NR. (=*mesites, Jord.*).

γ. ♂ uph submarginal spots complete and sometimes the discal ones also. ♀ upf submarginal spots increasingly prominent towards apex; uph only postdiscal series dusky grey spots as in No. 17.

*castor mehala, Gr. S.* S. Burma. R.

**A4. Papilio.—The Black-bodied Swallowtails (Plates 2-5)—*contd.***

19a (16b). Tailed.

19b (26). Upf no prominent pale discal band from dorsum to apex.

19c (24a). Uph large white subapical patch.

19d (22a). Unh pale scales in cell arranged in 3 prominent streaks.

19e (21). Unh submarginal lunules red. ♂ upf outer half covered dense hairs, concealing yellow scaling.

19 (20). Uph white area 5-7. Unh complete row submarginal red lunules.

*α*. Unh blue lunules beyond the white discal spots, often continued to dorsum.

*helenus mooreanus, Roth.* (115-130). The Red Helen. Ceylon. NR.

*β*. Unh no blue lunules. Unf pale discal streaks short, do not reach termen or enter cell.

*helenus daksha, M.* S. India. NR.

*γ*. Smaller. Unf pale streaks reach termen and enter cell.

*helenus helenus, L.* (110-120). Mussoorie—Burma. C. (=*rufatus, Roth.*).

20 (19). Uph discal white area 4-7. Unh only submarginal red lunules in 1 and 2; discal blue lunules 2-4. Unf pale streaks short.

*iswara, White.* (130-150). The Great Helen. Mergui. VR.

21 (19e). Unh submarginal lunules yellow, complete; no blue lunules; small discal yellow spots 1-3. Uph white area 4-7 and often spot base 3. Unf white spot in 1.

* *chaon chaon, Wd.* (115-130). The Yellow Helen. Orissa. Nepal—N. Burma. C. (=*leucacantha, paryphanta, Jord.*).

*β*. ♂ uph white area larger, fourth patch produced into a long point, projecting beyond the third patch.

*chaon ducenarius, Fruh.* S. Burma. NR.

22a (19d). Uph pale scales in cell uniformly spread.

22 (23). Uph discal white area 5-7, sometimes extending unf to 1a and 1. Unh complete row red lunules; white patch has inner edge quite straight and enters cell. Unf pale streaks short.

*noblei, DeN.* (110). Noble's Helen. Burma. VR.

23 (22). Uph discal white patch 4-7. Unh complete series blue lunules beyond the white patch.

*fuscus andamanicus, Roth.* (105-115). The Andaman Helen. Andamans. R. (=*prexaspes, Auct.*).

24a (19c). Uph either a discal white band across the wing or a central row of white or red spots.

24 (25). ♂ ♀ alike with a discal white band uph, which is conspicuously wider in the middle. Upf no white submarginal spots. Unh submarginal lunules yellow.

*hipponous pitmani, El.* and *DeN.* (90-100). Pitman's Helen. S. Burma. R. (=*leptosephus, Fruh.*).

25 (24). ♂ uph discal white band of even width; uph and unh submarginal lunules red; upf prominent marginal white spots. ♀ in 3 forms. Typical form, uph red discal spots; upf white central and apical band; resembles *hector*. 2nd form as ♂. 3rd form uph white discal spots 2-5, which may enter cell; upf pale brown outwardly with prominent black streaks between veins and no white marginal spots; resembles *aristolochiæ*. Very subject to aberrations.

* *polytes romulus, Cr.* (90-100). The Common Mormon. Ceylon, India. Burma. VC. (= *pammon, Auct.: sakontala, Hew.: walkeri, Jamson.: astreans, Jord.: cyroides, rubida, Fruh.*).

♀ *v. cyrus, F.* R.

* ♀ *v. stichius, Hub* VC.

*β*. Larger. Uph ♂ marginal red lunules absent. ♀ typical form as ♂. 2nd form as *stichius*, but larger.

*polytes nikobarus, Fd.* (100-115). Andamans and Nicobars. C.

♀ *v. stichioides, Evans.* C.

26 (19b). Above black with a pale band across both wings; uph submarginal crescents. Unh evenly powdered white scales. ♂ upf outer half densely hairy.

*α*. Upf postdiscal band yellowish, macular throughout. Uph end cell on centre of the discal band.

*demolion liomedon, M.* (90-100). The Malabar Banded Swallowtail. S. India. R.

**A4. Papilio.—The Black-bodied Swallowtails. (Plates 2-5)—*contd.***

β. Upf pale band greenish, lower 4 spots conjoined. Uph end cell beyond the discal band.

* *demolion demolion*, *Cr.* The Burmese Banded Swallowtail. S. Burma. NR.

27a (6b, 8a). Unh basal area entirely yellow.

27 (28a). Tailless. Upf postdiscal yellow spots irregular. Uph base dark brown, prominent large black ringed blue spot below costa.

α. Upf discal spot 1a no larger than spot in 3. Uph black area end cell not half way to origin v7.

* *demoleus demoleus*, *L.* (80-100). The Lime Butterfly. Ceylon, India, N. Burma. VC. (= *erithonius*, *Cr.*; *demoleinus*, *Ob.*).

β. Upf spot in 1a much wider than spot in 3. Uph black area end cell not halfway to origin of v7.

*demoleus malayanus*, *Wall.* S. Burma. C.

28a (27). Tailed.

28 (29a). Above veins not black; entirely yellow with narrow black bands, the discal band being blue centred.

*alexanor*, *Esp.* (75-90). The Baluchi Yellow Swallowtail. Baluchistan. VR.

29a (28). Above veins black. Upf regular row submarginal spots.

29 (30). Upf basal ½ black, sprinkled yellow scales.

α. Uph blue lunule above tornal red spot conjoined to it; dark discal band very near end cell.

*machaon asiatica*, *Men.* (75-90). The Common Yellow Swallowtail. Baluchistan. Chitral—Nepal. C.

*v. ladakensis*, *M.* Tail very short. High elevations only. R.

β. Uph blue lunule separated from tornal red spot by a black line; discal band broader and further from cell.

*machaon sikkimensis*, *M.* Sikkim—Bhutan. NR.

γ. Uph tornal red spot very large and not black edged below; discal band still further from end cell; dcv 6-7 broad black as well as 5-6. Above darker yellow.

**machaon verityi*, *Fruh.* Assam—N. Burma. R. (= *birmanicus*, *Roth.*).

30 (29). Upf yellow streak from base along lower edge cell and basal ½ cell yellow streaked, not sprinkled yellow scales. Uph yellow streak in 1 to base.

*xuthus*, *L.* (75-90). The Chinese Yellow Swallowtail. N. Burma. VR.

**A5. Pathysa.—The Swordtails. (Plate 5).**

1a (3a). Upf dark bar end cell double, enclosing 2 pale spots; 4 dark bars in cell.

1 (2). Unh central row of pale spots complete.

α. Upf 4th bar in cell from base not below mv and post discal line not to v1.

*eurous cashmirensis*, *Roth.* (60-70). The Sixbar Swordtail. Kashmir—Kumaon. NR.

β. Upf 4th bar extends along v3 and postdiscal line to v1.

*eurous sikkimica*, *Heron.* Sikkim—Assam.

2 (1). Unh central row spots consist of only a spot mid 7, end cell and in 2.

**glycerion*, *Gray.* (65-75). The Spectacle Swordtail. Sikkim—N. Burma. NR. (= *paphus*, *DeN.*).

3a (1a). Upf dark bar end cell single.

3 (4a). Upf only 3 dark bars in cell; beyond a narrow dark discal and submarginal line, the area between being triangular.

α. Upf. 2nd bar from base to v1 or beyond; discal bar to v3.

*agetes agetes*, *Wd.* (75-90). The Fourbar Swordtail. Sikkim—N. Burma. NR.

β. Upf 2nd bar from base not to v1; discal line meets marginal line between v2 and 3. Uph no white submarginal line in 5 and 6.

**agetes iponus*, *Fruh.* Tavoy—S. Burma. NR.

4a (3). Upf 4 broad dark bars in cell.

4b (6). Unh central row red spots.

4 (5) Upf row pale rounded spots on the broad dark margin, of which the second from the apex is out of line.

**A5. Pathysa.—The Swordtails. (Plate 5)—*contd.***

α. Uph dark margin does not enclose pale spot in 3; unh precostal spur not defined black.

**nomius nomius*, *Esp.* (75-90). The Spot Swordtail. Ceylon, S. India—Sikkim. NR.

β. Uph dark margin encloses pale spot in 3; unh precostal spur defined black. All dark markings broader.

*nomius swinhoei*, *M.* Assam—S. Burma. NR. (= *pernomius*, *Fr.*).

5 (4). Upf a pale green regular chain line, not spots, on the dark margin.

α. Uph no continuous central dark band.

*aristeus anticrates*, *Db.* (70-80). The Chain Swordtail. Sikkim—Assam. R.

β. Uph continuous central dark band. Markings broader.

*aristeus hermocrates*, *Fd.* Burma. R. (= *aristeoides*, *nigricans*, *Eimer.*).

6 (4b). Unh no central row red spots.

α. Upf marginal band to v1 and submarginal to v2, but do not unite; subbasal band to dorsum and 2nd from base to v1. Uph no tornal grey area.

*antiphates ceylonicus*. *Eim.* (80-95). The Fivebar Swordtail. Ceylon. VR. (= *antiphanus*, *Fr.*)

β. Upf submarginal and marginal band unite at v3 and reach dorsum. Uph grey tornal area extending as a broad band to the costa.

*antiphates naira*, *M.* S. India. VR.

γ. Very variable. Upf 2nd bar from base to v1; postdiscal band, if extended below v2 unites with the marginal band. Uph grey tornal area prominent but confined to tornus.

**antiphates pompilius*, *F.* Sikkim—Burma. C. (=*alcibiades*, *Auct.*: *itamputi*) *nebulosus*, *But.*: *continentalis*, *Eimer.*).

δ. All markings much broader. Upf 2nd bar from base to dorsum; discal bar curved under bar end cell as in β. Uph grey tornal area extended to costa as a broad band, but is black at apex.

*antiphates epaminondas*, *Ob.* Andamans. NR. (= *laestrygonum*, *WM.*)

**A6. Zeltidæ.—The Bluebottles and Jays. (Plate 5).**

1a (3a). Uph no submarginal row green spots.

1 (2). H long tail. Upf transparent green; black margin along costa and termen united by 4 black lines towards apex.

**cloanthus*, *Wd.* (85-95). The Glassy Bluebottle. Kashmir—Burma. NR. (= *cloanthulus*, *Fr.*).

2 (1). H tail very short. Black with green band across wings, which becomes macular towards the apex F.

α. Upf apical part of discal band yellowish green. Uph mv black on the discal band

*sarpedon teredon*, *Fd.* (80-90). The Common Bluebottle. Ceylon. S. India, C. (= *thermodusa*, *Swin.*).

β. Above band broader and nearly uniformly coloured. Uph mv mostly white on the discal band. H tail shorter.

* *sarpedon sarpedon*, *L.* Kashmir—Burma. C. (= *melas*, *Fr.*).

3a (1a). Upf row green submarginal spots.

3b (8). Upf cell spots single. Tailless.

3c (6a). Unh costal dark bar towards base not continued to origin v7 and veins on disc not black. Above markings pale bluish green.

3 (4a). Unh costal bar separated from basal dark band, bar red centred. Unh extreme end cell brown.

α. Uph costal bar coalesced to basal dark band; upf lower of 2 submarginal spots in 1 rarely present. H tooth at v4 prominent: Upf subbasal green line often absent. Uph mv thick black on the discal band.

*doson doson*, *Fd.* (70-80). The Common Jay. Ceylon. C. (=*jason*, *Auct.*).

β. Uph mv less black on inner part of discal band. H tooth v4 not prominent. Upf subbasal green line prominent.

*doson eleius*, *Fr.* S. India—Bengal. C.

γ. Uph costal bar separate from basal dark band. Above discal band wider Upf 2nd submarginal spot in 1 nearly always present.

* *doson axion*, *Fd.* Kumaon—Burma. C. (= *acheron*, *M.*).

4a (3). Unh costal bar united to basal band; extreme end cell red.

**A7. Paranticopsis.—The Zebras. (Plate 6)—*contd.***

* *xenocles xenocles*, *Db*. Assam, NR. (*thermus*, *Fr.*)
γ. As α but pale stripes narrower.
*xenocles kephisos*, *Fruh*. Burma. R. ( =*neronus*, *Fr*).
3 (1a). Uph discal streaks in 3, 4 and 5 divided into small spots. All pale markings very small.
α. Upf cell spots very small and unf nearly absent.
**megarus megarus*, *Wd*. (65–90). The Spotted Zebra. Assam—N. Burma.
β. Upf and unf cell spots well developed.
*megarus similis*, *Lathy*. Shan States—S. Burma. R.

**A8. Meandrusa.—The Hooked Swallowtails. (Plate 6).**

1 (2). Below basal ⅓ dark chocolate brown. ♂ above dark brown with yellow submarginal spots. ♀ broad discal white band, interrupted beyond end cell F. Apex F produced.
**gyas gyas*, *Wd*. (105–115). The Brown Gorgon. Sikkim—Assam. R. ( = *lachinus*, *Fr*).
β. ♂ below central area lighter. Upf spots smaller.
*gyas aribbas*, *Fruh*. Upper Burma—Dawnas. VR.
2 (1). Below basal area orange yellow, brown spotted. Above orange yellow spotted dark brown margins upf and discal band uph. Apex F falcate.
α. Uph no discal yellow spot in 5.
**payeni evan*, *Db*. (110–130). The Yellow Gorgon. Sikkim—Assam. NR.

β. Uph discal yellow spot in 5 and upf well defined dark brown line v3–v7 along inner edge of dark marginal area, separating off small yellow spots.
*payeni amphis*, Jord. N. Burma. R.

**A9. Teinopalpus.—The Kaiserihind. (Plate 6).**

Above green, ♂ with prominent yellow upper discal area uph ; ♀ with this area grey and 2 grey bands upf. Below ♂ basal half green, outer half yellow brown ; ♀ mostly grey.
α. ♂ uph yellow discal area enters end cell and ends just before v3. Smaller.
**imperials imperialis*, *Hope*. (90–120). The Kaiserihind. Sikkim—Assam. R. (=*harryiae*, *Hope* : *himalaicus*, *Roth*).
β. ♀ uph yellow discal area scarcely enters end cell and ends on v2. ♀ uph darker, yellow dorsal area to v3.
*imperialis imperalrix*, *DeN*. N. Burma—Ataran. R.

**A10. Leptocircus.—The Dragontails. (Plate 6).**

1 (2). Above band white, constricted on upf towards centre. Tarsal claw with a tooth. ♂ with scent organ.
*currius*, *F*. (40-50). The White Dragontail. Assam—Burma. NR.
2 (1). Above band green and black band beyond of nearly even width throughout. Tarsal claw simple. ♂ no scent organ.
α. Unh white band along dorsum towards tornus ill defined and widely separated from latter.
*meges indistincta*, *Tyt*. (40–55). The Green Dragontail. Assam—N. Burma NR.
β. Unh white band along dorsum towards tornus well defined and closer to latter.
*virescens*, *But*. Karens—S. Burma. C.

**A11. Armandia.—The Bhutan Glory. (Plate 6).**

Above black with narrow white lines; uph tornus with 2 or 3 blue and white ocelli on a black area, crowned by a large red area, which is posteriorly yellow. tail at v4; short tails at vs 2, 3 and 5.
**lidderdalei*, *Atk*. (90–110). The Bhutan Glory. Bhutan, Naga and Chin Hills. R.

**A6. Zetides.—The Bluebottles and Jays. (Plate 5)—*contd.***

4a (5). Upf only one submarginal spot in 1. ♂ scent wool forms a narrow stripe. Abdomen above black.

α. Unh costal bar red centred. Upf spot near base 5.

*evemon albociliatis, Fruh.* The Lesser Jay. Assam—Tavoy, R.

β. Unh costal dark bar all black. Upf no spot near base 5.

*evemon orthia, Jord.* Mergui—S. Burma. R.

5 (4). Upf always 2 submarginal spots in 1. Unh costal bar red centred: Abdomen above whitish. Very rarely the costal bar unh is not joined to the basal bar and then the basal margin of the silver band between is notched at scv.

α. Uph ends some veins black on the green band. Unh no pale spot base 3. Unf 2 submarginal spots in 7 conjoined.

*eurypylus cheronus, Fruh.* (75-90). The Great Jay. Sikkim—Burma. NR. (= *petina, Jord.*)

β. Bands above very broad and no dark veins on the band uph. Unh pale spot base 3. Unf 2 submarginal spots in 7 separate.

*eurypylus macronius, Jord.* Andamans, NR.

6a (3c). Unh costal dark bar continued to origin v7 and all veins on disc black.

6 (7). Uph cell all pale. Above pale green with broad markings. Unh costal bar all black, but spot internal to it pale yellow; discal spots orange, not red.

*bathycles chiron, Wall.* (75-100). The Veined Jay. Sikkim—Burma. NR. (=*ligyra, Jord.*)

7 (6). Uph cell dark with 2 green spots. Above spotted as No. 8, but smaller, markings bright green. Unh costal bar red centred and discal spots red.

*arycles, Bdv.* (70-80). The Spotted Jay. Assam—S. Burma. R.

8 (3b) Upf cell spots double. Above black, markings small and bright green. H short tail.

α. Tail always longer.

*agammemnon menides, Fruh.* (85-100). The Tailed Jay. Ceylon, S. India. C.

β. Tail always shorter.

* *agammemnon agamemnmon, L.* Kumaon—Burma. C. = (*rufescens, Ob.: rufoplenus, Fr.*)

γ. Above markings much greyer green.

*agammemnon andamanica, Lathy.* Andamans. C.

δ. Unh 5 to 7 light red spots.

*agammemnon decoratus, Roth.* Nicobars. C.

**A7. Paranticopsis.—The Zebras. (Plate 6).**

1a (3). Uph discal streaks in 3, 4 and 5 entire.

1 (2). Unh tornal yellow spot very small; usually dark bar in cell formed by continuation of v4. Unf discal spot just below v8 rarely present as a dot.

α. ♂ broad white stripes. ♀ as ♂, white stripes broader than the black ones.

*macareus indicus, Roth.* (80-100). The Lesser Zebra. Sikkim. NR. (=*polynices, DeN.*).

β. ♀ very dark white stripes much narrower than the dark ones.

*mecareus lioneli, Fruh.* Assam. NR.

γ. ♂ white stripes narrower. ♀ as ♂ but white spots on apical half F and outer half H narrower.

*macareus gyndes, Jord.* N. Burma—Tavoy. R.

δ. ♂ white markings very broad, upper discal streak conjoined to spots beyond cell; upf cell bars broad and complete, but unf each broken into 3 spots. ♀ as β but apex F much darker and spots thereon quite white, while rest are sullied; upf discal streaks in 2 and 3 short, do not nearly reach base; cell bars much reduced.

*macareus perakensis, Fruh.* Mergui—S. Burma. R.

2 (1). Unh tornal yellow spot very large; very rarely dark bar in cell formed by continuation of v4. Upf discal spot below v8 always prominent.

α. ♀ as ♂.

*xenocles phrontis, DeN.* (85-120). The Great Zebra. Sikkim. NR. (*xenocrates, Fr.*)

β. ♀ much darker and pale stripes much narrower.

**A12. Hypermnestra.—The Desert Apollo. (Plate 6).**

Above cream white. Upf black spot in and at end cell; just beyond cell double, black ringed, red spot. Unh white with irregular greenish patches and obscure red spot base costa and on disc.

**helios balucha, M.* (45–55). The Desert Apollo. Baluchistan.

**A13. Parnassius.—The Snow Apollos. (Plate 6).**

The spotting and venation very variable and no single character can be taken as absolutely reliable.

1a (4a). F v7 ex 6; 10 and 11 free. Antennæ white ringed. Unh red basal spots complete; uph never blue spots. Upf usually 2 red spots end cell, red spot mid 1 and no connecting dark area or band. Uph red spot base 7; 3 discal red spots, viz., mid 7 between vs 4-6, in 1-2, latter being more often black above; submarginal row black lunules. ♀ pouch brown, boat shaped below, pointed in front.

1b (3). ♀ pouch posteriorly keeled. Upf cilia not or hardly chequered; vitreous dark marginal area wide, as wide or wider than the submarginal white and post discal black bands together.

1 (2). Very large with large red spots.

*discobolus insignis, Stg.* (70–80). The Larger Keeled Apollo. Chitral. R.

2 (1). Smaller.

α. Small and very white, very little black scaling.

*jacquemontii chitralensis, M.* (55–70). The Keeled Apollo. Chitral NR.

β. Large; often much black scaling; sometimes yellowish.

*jacquemontii jacquemontii, Bdv.* (65–75). Kashmir—Kumaon. R. (= *himalayensis, El. : rhodius, Hon.*).

3 (1b). ♀ punch not keeled. Upf cilia prominently chequered; vitreous dark marginal area narrow.

α. Comparatively large and white.

**epaphus epaphus, Ob.* (50–60). The Common Red Apollo. Chitral—Kumaon. NR. (*cachemiriensis, Ob. : nirius, M.*).

β. Small and dark.

*epaphus sikkimensis, El.* (40–50). Sikkim. C. (= *impunctata, Aust.*).

4a (1a). F v7 not ex 6. Antennæ black, not white ringed, but sometimes scaled yellow or whitish.

4b (7a). F vs 10 and 11 not anastomosed, but may touch.

4 (5a). F vs 6 and 7 from a point and origin v10 far removed. Uph complete submarginal row blue and white centred black spots on a white ground, though margin may be blackish. Unh prominent red basal spots. Upf spots end cell and mid 1 usually red but not joined by a dark band. Uph not as a rule a red spot base 7; remaining discal spots prominent. Unh submarginal spots greenish. Two broods, DSF pale, WSF dark. ♀ pouch white like a cylinder squashed in at the sides and the projecting lower portion then dented.

α. Comparatively large.

**hardwickei hardwickei, Gray.* (55-65). The Common Blue Apollo. Chitral—Kumaon. C. (= *charino Gray : afer, albicans, otos, Fr. : parva, Ver*).

β. Smaller.

*hardwickei viridicans, Fruh.* (50–60). Sikkim. C.

5a (4). F vs 6 and 7 separate at the base; usually bases 6, 7 and 10 equidistant. Upf spots end cell and mid 1 black and joined by a dark band. Uph blue centred black submarginal spots in at least 2 and 3; beyond to costa there may be a complete series of similar spots or a dark wavy line.

5 (6). Comparatively small. Unh basal red spots obsolete Uph no red spot base 7 and discal spots not white centred. ♀ pouch surrounds end abdomen, like a cylinder squashed flat from below and the end split, resulting in 2 divergent points.

α. H angled at v7. Upf discal band obsolete; postdiscal dark band in ♂ not to dorsum. Uph discal spots 5 and 7 prominent red, equal sized; spots 1 and 2 obsolete; only blue submarginal spots in 2 and 3; marginal dark area faint.

*delphius kafir, Avin.* (55–65). The Kafir Banded Apollo. Safed Koh—Kafiristan. VR.

**A13. Parnassius.—The Snow Apollos. (Plate 6)—*contd.***

β. Upf postdiscal and discal bands conjoined in 3. Uph discal red spot in 5 prominent; 7 smaller black or red; only blue spots in 2 and 3.

*delphius chitralica, Ver.* The Chitral Banded Apollo. Chitral. VR.

γ. Very washed out pale form with reduced markings. Upf no discal band or spot in 1. Uph no discal spot in 7; spot in 1 small and black; margin dark; only blue spots in 2 and 3 and the wavy line beyond obsolete.

*delphius hunza, Groum.* The Hunza Banded Apollo. Hunza. VR.

δ. Upf discal and postdiscal bands narrow, complete, sharp defined. Uph discal spot 5 prominent, spot mid 7 black, just indicated or absent; submarginal blue spots usually complete and on dark area, which does not reach the margin, but sometimes there are only blue spots in 2 and 3 with a dark wavy line beyond; discal spots 1 and 2 often red and usually indicated.

*delphius nicevillei, Avin.* The Astor Banded Apollo. Astor, Western Kashmir. R.

η. Upf much as last, may be washed out looking in ♀. Uph discal red spot 5 very large, from v4-6, spot mid 7 small, black: always discal red spots 1 and 2; submarginal blue spots complete and on a dark ground that reaches the margin.

*delphius atkinsoni, M.* The Pir Panjal Banded Apollo. E. and S. Kashmir. VR.

ξ. Upf postdiscal dark band very broad, as broad as marginal dark band; white submarginal spots small and end at v2; discal band often incomplete posteriorly. Uph discal spot in 5 variable; spot in 7 usually absent; submarginal blue spots complete and on a broad dark area to margin; discal spots in 1 and 2 prominent or absent.

*delphius stoliczanus, Fd.* The Ladak Banded Apollo. Ladak—Kulu. VR. (= *stenosemus, Hon.*: *ladakensis, mamaivei, workmanni, Avin*).

ε. Upf very white with narrow complete bands. Uph basal black scaling up to inner edge of discal spots 5 and 7, which are red and equal; no spots 1 and 2; submarginal blue (sometimes black) spots in 2 and 3 only and wavy line beyond prominent; margin white.

*delphius lampidius, Fruh.* The Sikkim Banded Apollo. Sikkim. VR. (= *whitei, Bing*: *pundit, Avin*).

θ As last but much larger and very dark. Upf almost completely black scaled and uph black scaled to outer edge of discal spots, which are small and equal; margin narrow black.

*delphius latonius, Bryk.* (55–65). The Thibet Banded Apollo. Sikkim—Phari Jong. VR.

6 (5). Large. Unh basal red spots prominent. Uph red spot base 7. Above general tone yellowish. Upf black bands broad, complete, considerable black scaling. Uph discal spots 5 and 7 large, white centred; from spot in 5 a black band to dorsum; submarginal blue spots 2 and 3 large and wavy line to costa broad; margin broadly pale. ♀ pouch as last, but sides broken and separated from body.

*imperator augustus, Fruh.* (80–90). The Imperial Apollo. Sikkim. VR.

7a (4*b*). F vs 10 and 11 anastomosed.

7b (10). F vs 10 and 7 well separated at base, 7 and 6 approximate. Comparatively small. Uph all submarginal spots black. Uph discal band more or less complete, no red spots.

7 (8a). Upf cilia black. Uph always small red discal spots 5 and 7, no spot base 7; unh red basal spots. ♀ pouch black with 2 long contiguous points.

α. Upf marginal dark area broad; postdiscal band prominent; discal band slender. Uph discal spots small; sub-marginal spots small and separate; margin narrowly dark.

*simo simo, Gray.* (45–55). The Black-edged Apollo. Ladak. VR. (= *simonides, Ausl.*).

β. Upf marginal dark area reduced to a thin line, thickened at end veins; white submarginal spots and postdiscal dark band very broad. Uph black spot in 7 behind the red spot; from discal spot in 5 a more or less complete black band to dorsum; submarginal black band broad and continuous, margin white with black veins. VR.

*simo acconus, Fruh.* Sikkim. (= *moelleri, Bing.*).

**A13. Parnassius.—The Snow Apollos. (Plate 6)—*contd.***

8a (7). Upf cilia pale yellow or white. ♀ pouch white, hangs down as a pendulous bag, squashed flat at the sides.

8 (9). Above very white no red spots at all. Very small. Upf discal band more or less complete ; postdiscal dark band, submarginal white spots and marginal dark band all of equal width. Uph discal spots 5, mid 7 and base 7 small and black : more or less continuous discal band from 7 to dorsum ; basal black scaling very reduced ; submarginal spots small, well separated, margin white.

*hannyngtoni, Avin.* (40–45). Hannyngton's Apollo. Sikkim—S. Thibet. VR. (=*hunnyngtoni, Avin in errore*).

9 (8). Uph with red spots.

α. As β but very washed out.

*acco acco, Gray.* (40–60). The Varnished Apollo. Ladak. VR. (=*hampsoni, Avin.*).

β. Upf white submarginal spots unusually sharp, veins broadly black especially 2, 3 and 4. Uph prominent red spot 5, mid 7, base 7 and a black spot in between the two latter ; spot in 5 joined to dorsum by a black band and usually a black spot between 5 and 7 ; submarginal spots prominent, well separated, margin narrowly black. Unh has a varnished yellow appearance, concealing the basal red spots except that in 7.

*acco gemmifer, Fruh.* (45–55). Sikkim. VR.

10 (7b). Very large. F v10 ex 7 ; 6 and 7 well separated at origin. Upf discal band usually broadened below cell, bases 2 and 3 usually entirely black ; no red spot. Uph no spot base 7, small red or black spot mid 7 ; very large red spot extending from v4–6, usually white centred and a red or black basal bar in 1-2; complete row blue centred black submarginal spots on a dark ground; margin narrowly dark. ♀ pouch very large, cornute. Unh red basal spots obscure.

**charltonius, Gray.* (80–90). The Regal Apollo. Chitral—Kumaon. R. (=*atrogutta, haudei, accidentalis, Bryk.: Bryki Haud : deckerti, Ver.*).

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Notes on the *Papilionidæ*. The genera *Troides* to *Meandrusa* are usually dealt with under *Papilio*, which genus Moore split up into numerous genera ; the genera adopted here appear natural and easily recognizable.

It is questionable whether *rhodifer* should not be regarded as a race of *coon* and *polymnestor* and *mayo* as races of *memnon ; mahadeva* may be a dimorphic form of *castor mehala*.

Additional races have been described for many of the species, more especially in the genus *Parnassius* ; I have only included what appear to me to be really well defined races. Aberrations and infrequent varieties have been omitted.

## *B. PIERIDÆ*

**B. Pieridæ. The Whites. Genera Key.**

1a (3a). F v5 ex 6 ; v9 absent. H precostal straight, directed back. Palpi slender, hairy.

1 (2). F v8 absent ; upper apex of cell acute, dcvs concave, H v8 as long as cell. Antennæ club slender.

*Leptosia, Hub.* The Psyche. (Plate 7). (= *Nychitona, But.*).

2 (1). F v8 present, very short ; upper apex of cell obtuse, dcvs nearly straight. H v8 half as long as cell. Antennæ club spatulate.

*Baltia, M.* The Dwarf Whites. (Plate 7).

3a (1a). F vs 5 and 6 separate at origins.

3b (17a). F v6 ex 7 from well beyond end cell.

3c (14a). H with well developed precostal vein.

3d (11a). Palpi slender, hairy, third joint usually long.

3e (9a). F dcv 5-6 not angled.

3 (4a). F upper apex cell acute ; vs 5 and 6 approximate at origin, dcv 5-6 short and may or may not be in line with dcv 4-5 ; v10 from upper end cell ; v8 comparatively long ; v9 present or absent. H precostal straight. Antennæ with stout club.

*Euchloe, Hub.* The Little Whites. (Plate 7). (= *Anthocaris, Bdv.*).

4a (3). F upper apex cell obtuse ; v9 absent. H precostal curved forward.

4 (5a). F v8 very short, hardly visible and may be absent ; v10 usually from well before end cell and dcv 5-6 unusually long, but first group are transitional to last genus. Antennæ club stout.

*Pieris, Schrank.* The Bath and Cabbage Whites. (Plate 7). (= *Danaus, L : Ganoris, Dalman : Pontia, Fab.: Synchloe, Mancipium, Hub.: Leucochloe, Röb.: Parapieris, DeN.*).

5a (4). F v8 comparatively long and prominent.

5b (8). F v11, if present, free from 12.

5c (7). F costa smooth.

5 (6). F v11 present. Antennæ club stout.

*Aporia, Hub.* The Blackveins. (Plate 7). (= *Metaporia, But.*).

6 (5). F v11 absent. Antennæ club slender.

*Delias, Hub.* The Jezabels. (Plate 7). (= *Thyca, Wallace : Piccarda, Grote.*).

7 (5c). F costa serrate in ♂ ; v11 present. Antennæ club slender.

*Prioneris, Wall.* The Sawtooths. (Plate 8).

8 (5b). F v11 anastomosed to v12. Antennæ club slender.

*Belenois, Hub.* The Pioneer. (Plate 7). (= *Anaphæis, Hub*).

9a (3e). F dcv 5-6 angled ; v10 well before end cell ; 11 and 8 present, 9 absent. H precostal well curved forward. Antennæ club slender.

9 (10). ♂ no abdominal hair pencils. F apex not produced, termen straight or convex.

*Huphina, M.* The Gulls (Plate 8).

10 (9). ♂ (except *lalassis*) with abdominal hair pencils. Apex F usually produced and may be falcate, termen usually concave.

*Appias, Hub.* The Puffins and Albatrosses. (Plate 8). (= *Hyposcritia, Geyer : Catophaga, Hub.: Tachyris, Wallace : Saletara, Dist.: Lade, DeN.*).

11a (3d). Palpi scaled, short and stout, third joint very short. F v10 from just before end cell.

11 (12a). H precostal short and lumpy. F apex lies between vs7 and 8. ♂ uph white brand base 7 ; unf tuft white hairs towards base dorsum.

*Catopsilia, Hub.* The Emigrants. (Plate 9). (= *Callidryas, Auct.*).

12a (11). H precostal slender, curved back.

**B. Pieridæ.—The Whites. Genera Key—*contd.***

12 (13). F apex at end v7. H rounded ; v7 well before end cell; dcv 7-6 inclined.
*Gandaca. M.* The Tree Yellow. (Plate 9).
13 (12). F apex between vs 6 and 7, falcate or pointed.
*Dercas, Db.* The Sulphurs. (Plate 9).
14a (3b). H no precostal vein.
14b (16). F v10 before end cell.
14 (15) H scv and 7 in a straight line. F falcate and H dentate at v3. Palpi hairy, third joint short. F apex between vs 6 and 7.
*Gonepteryx, Leach.* The Brimstones (Plate 9) (= *Rhodocera, Dupon*).
15 (14). H scv and v6 in a straight line, 7 from at or just before end cell, dcv 6-5 vertical. Palpi scaled, third joint short.
*Terias, Swain.* The Grass Yellows. (Plate 9). (= *Kibreeta, Nirmula, M*).
16 (14b). F v10 from beyond end cell ; apex between vs 7 and 8. Palpi long, hairy, third joint short.
*Colias, Fab.* The Clouded Yellows. (Plate 9). (=*Eurymus, Swain*).
17a (3b). F vs 6 and 7 separate or only just forked (except *Ixias pyrene*), Palpi hairy, short, third joint short. H precostal curved forward.
17b (19a). H v8 shorter than v1 F
17 (18). H v6 not nearer 5 than 7.
*Ixias, Hub.* The Indian Orange Tips. (Plate 9).
18 (17). H v6 much nearer 5 than 7.
*Colotis, Hub.* The Little Orange Tips and Arabs. (Plate 9). (= *Callosune, Db.: Teracolus, Swain.: Idmais, Bdv.: Madais, Swin*).
19a (17b) H v8 equal to v1 F.
19 (20). F vs 6 and 7 well separated at origin ; dcv 6-5 straight, 5-4 angled ; v9 absent.
*Hebomoia, Hub.* The Great Orange Tip. (Plate 9).
20 (10). F vs 6 and 7 from a point ; dcv 6-5 angled, 5-4 straight ; v9 present.
*Pareronia, DeN.* The Wanderers. (Plate 9). (= *Eronia, Auct.: Nepheronia, Bdv.*).

## KEY TO SPECIES

**B1. Leptosia.—The Psyche. (Plate 7).**

α. Unmarked white, except upf black apex and large black spot from 3-4. unh striated greenish.
* *nina nina, F.* (35-50) The Psyche. Ceylon. S. India—Mussoorie—Burma. Andamans. C. (= *xiphia, F.*).
β. Upf markings much reduced.
*nina nicobarica, Doh.* Nicobars. C.

**B2. Baltia.—The Dwarfs. (Plate 8).**

White. Upf prominent black spot end cell ; discal costal bar, continued in ♀ as a discal band ; marginal black spots more prominent at apex.
1 (2). Unh single dark spot end cell; more or less dusted blackish scales, especially at base in ♂.
* *shawi, Bates.* (30-40). Shaw's Dwarf. Chitral—Ladak. NR.
2 (1). Unh 2 dark spots end cell ; yellow, veins yellow, broadly defined dark brown and similarly at apex unf.
*butleri butleri, M.* (35-45). Butler's Dwarf. Ladak—Kumaon. R.
β. ♂ upf complete discal band. Below brighter.
*butleri sikkima, Fruh.* Sikkim. VR.

**B3. : Euchloe.—The Little Whites. (Plate 8).**

White or pale yellow. Upf prominent black spot end cell ; apex dark brown more or less white spotted.
1 (2a). F costa plain. Below apex F and all H uniform dull green or greenish brown ; unh costa with white spots and spot end cell. ♂ ♀ pale yellow. F v9 present.

**B3. Euchloe.—The Little Whites. (Plates 8.)—*contd.***

* ***charlonia lucilla***, But. (35-45). The Lemon White. Baluchistan, Punjab. R.

2a (1). F costa black spotted. Above white, apex F spotted. Unf white bar mid costa continued across mid cell.

2 (3). Below apex F and all H with broad green regular stripes, leaving narrow white stripes between. F v9 present.

* ***belemia***, *Esp.* (40-50). The Striped White. Baluchistan. VR.

3 (2). Below apex F and all H with irregular open network of greenish brown lines, enclosing prominent pearly spots. F v9 absent.

* ***ausonia daphalis***, *M.* (40-45). The Pearl White. Baluchistan—Chitral—Kumaon. R. (= ***belia***, *Cr. : venosa. But.*).

Note.—True ***ausonia***, *Hub*, which has v9 present, is almost certain to be discovered in Baluchistan sooner or later.

**B4. Pieris.—The Whites. (Plate 8).**

F costa never spotted.

1a (6a). Upf prominent black spot end cell ; at apex ends veins black. Unh spot end cell not joined to costal spot.

1b (5). Upf and unf a more or less prominent discal costal black bar separate from the marginal spots ; in ♀ a black spot mid 1. Unf apex and all unh with more or less prominent green or yellow spots or bands.

1c (3a). Unh pale spot mid cell elongated.

1 (2). Unh veins crossing discal pale bands not green edged. F v10 from end cell ; vs 5 and 6 approximate.

***chloridice***, *Hub.* (45-50). The Lesser Bath White. Baluchistan—Chitral—Ladak. R.

2 (1). Unh veins throughout broadly green edged. F v10 just before end cell ; 5 and 6 approximate.

* ***callidice kalora***, *M.* (50-60). The Lofty Bath White. Safed Koh—Chitral—Kumaon. C.

3a (1c). Unh pale spot mid cell circular. F v10 from well before end cell ; 5 and 6 separate.

3 (4) Unh veins not prominently yellow.

* ***daplidice moorei***, *Rob.* (45-50). The Bath White. Baluchistan—Chitral and Murree. NR.

4 (3). Unh veins prominently yellow.

***glauconome***, *Klug*. (45-55). The Desert Bath White. Baluchistan—Punjab and Chitral. R. (= ***vipasa***, *M*).

5 (1b). Upf and unf no discal costal bar ; discal dark band in ♀ not above vein 4. ♂ upf prominent black spot mid 3 and traces of discal band below. Unh pale yellow, base costa orange and all veins very broadly black edged.

* ***dubernardi chumbiensis***, *DeN.* (45-60). The Chumbi White. Chumbi Valley. Sikkim. NR.

6a (1a). Upf no prominent black spot end cell ; unf always prominent black spot mid 1 and 3, of which both appear on upf in ♀ and usually only that in 3 in ♂.

6 (7. 8a). Unh more or less prominent broad irregular green or yellowish green discal band and similar basal area. Upf spot in 3 large and often joined to marginal dark area ; a triangular costal bar above the spot, usually joined to apical dark area above, but prominent below.

***krueperi devta***, *DeN.* (50-55). The Green Banded White. Baluchistan—Ladak, VR.

7 (6, 8a). Unh all veins prominently darkened, greenish.

α. Small and pale ; ♀ white.

***napi ajaka***, *M.* (40-55). The Greenvein White. Murree—Kumaon. C. (= ***ajuta***, *M.*).

β. Larger. ♀ yellow and often much darkened, Very variable.

***napi montana***, *Ver.* (50-60). Sikkim—S Shan States. NR. (= ***australis***, *Ver*).

γ. ♂ dark veining very pronounced : ♀ nearly black.

***napi melaina***, *Ver.* Chumbi Valley, Sikkim. NR.

8a (6, 7). Unh unmarked beyond a more or less intense dusting of dark scales, which may be irregularly distributed.

**B4 Pieris.—The Whites. (Plate 8)—*contd.***

8 (9a). Unh not dusted dark scales. Upf dcv black.
*naganum*, *M.* (65). The Naga White. Assam—N. Burma. VR.
9a (8). Unh dusted black scales. Upf dcv unmarked.
9b(11a). Uph with black spots at end veins. Upf inner edge of dark marginal area deeply scalloped.
9 (10). Unf with black marginal markings large. Above black margin continuous, cilia prominently broadly white. Unh uniform.
*deota*, *DeN.* (65). The Kashmir White. Kashmir—Ladak. VR.
10 (9). Unf no marginal black markings. Smaller. Upf black margin not continuous. Unh uniform.
α. Larger. More heavily marked.
*canidia canis*, *Evans.* (50-60). The Indian Cabbage White. Travancore—Nilgiris. VC.
β. Smaller. Less heavily marked, but very variable.
* *canidia indica*, *Evans.* (45-60). Chitral—Dawnas. VC.
11a (9b). Uph no black marginal spots. Upf inner edge black apical area regular or very nearly so.
11 (12). Upf black apical area to v3 or 4. Large.
* *brassicæ*, *L.* (65-75). The Large Cabbage White. Chitral—Assam and Plains adjoining Himalayas. VC. (=*nipalensis*, *Gray*).
12 (11). Upf black apical area only to v5 or 4. Smaller.
*rapæ*, *L.* (45-55). The Small Cabbage White. Baluchistan—Chitral and Ladak. VC.

**B5. Aporia.—The Blackveins. (Plate 8).**

1a (3a). Uph margin pale, veins crossing it white or narrowly black. Unh yellow with more or less complete sagittate discal line, which may be absent.
1 (2). Uph unmarked, no discal sagittate band. Above no suffusion of dark scales.
α. Small. Upf postdiscal band complete and veins beyond towards apex prominently black, widening at termen. Unh darker, sagittate discal band prominent. Upf bar end cell variable, wider in ♀.
*leucodcie baluchæ*, *Mar.* (40-50). The Baluchi Blackvein. Baluchistan—Chitral and Ladak. NR. (= *leechii*, *M.* : *sorex*, *GrS.*).
β. Large. H produced in middle. Upf postdiscal band usually obsolete in 3. Unh paler and discal band often absent.
**leucodice soracta*, *M.* (50-70). The Himalayan Blackvein. Kashmir—Kumaon. C. (=*denigrata*, *Fr.*).
2 (1). Uph prominent sagittate discal band. Below darker yellow.
α. ♂ above bright lemon yellow ; cell upf and below suffused black scales. ♀ white or pale yellow, no black scaling.
**nabellica hesba*, *Evans.* (50-60). The Dusky Blackvein. Chitral. VR.
β. ♂ pale yellow ♀ white or nearly so, but densely suffused black scales up to the discal band on both wings, leaving only the margin and an area beyond the cell pale.
*nabellica nabellica*, *Bdv.* (50-65). Kashmir—Kumaon. R.
3a (1). Uph margin entirely dark or with nearly conjoined spots at ends veins.
3 (4). Above black, half of cell 1 F and 8 H white ; prominent discal series white spots curved round cells ; submarginal white spots between veins, elongated into double streaks in ♀. Unh alternate black and yellow streaks along margin.
*harrietæ*, *DeN.* (70-80). The Bhutan Blackvein. Bhutan. VR.
4 (3). Upf discal area white, with broad dark veins, nearly conjoined to a band on the disc, grading to an entirely dark form with white discal and postdiscal spots.
α. Palest form ; discal and marginal bands not continuous.
*agathon phryxe*, *Bdv.* (80-90). The Great Blackvein. Kashmir—Mussoorie. NR.
β. Medium form ; discal and marginal bands continuous.
**agathon caphusa*, *M.* Mussoorie—Kumaon. NR. (=*ariaca*, *M.*).

**B5. Aporia.—The Blackveins. (Plate 8)—*contd.***

γ. Darkest form. Discal pale spots often small. Upf cell always black dusted.
*agathon agathon, Gray.* Nepal—S. Shan States. R.

**B6. Delias.—The Jezabels. (Plate 8).**

1a (4a). Uph and unh no prominent red or yellow spot at base.
1 (2a). Unh yellow, veins not black. Unf veins black. ♂ above white, apex F black, white spotted. ♀ upf black dusted and black veins; uph yellow.
α. ♂ upf black apex narrow, with large white spots. ♀ uph dark yellow with narrow dark margin. Unf white marginal spots not below v3; unh white spotted dark margin narrow, width = ¼ length v4.
**singhapura agostina, Hew.* (65-70). The Yellow Jezabel. Sikkim—Karens. NR. (= *infumata, Fr.*).
β. ♂ upf black apex broad, spots blurred, small. ♀ uph paler. Unh white marginal spots to v1 or 2. Unh border = ¼ v4.
*singhapura agoranis, GrS* Dawnas. R.
γ. Unh veins black.
*singhapura singhapura,* Wallace. Dawnas—S. Burma. R.
2a (1). Unh yellow, veins black; prominent row marginal red spots. Above white, veins black on F in ♂, on F and H in ♀.
2 (3). Unh red marginal spots black bordered and a corresponding black postdiscal line uph.
**eucharis, Drury.* (70-80). The Common Jezabel. Ceylon. S. India—Kumaon—N. Burma. C.
3 (2). Unh red spots inwardly not black edged. Upf black discal band inclined, meets termen at v2.
α. Paler. ♂ apical dark area reduced. ♀ no dark scales between veins.
*hyparete ethire Doh.* (70-80). The Painted Jezabel. Madras—Bengal. R.
β. Darker. ♀ very variable; upf always much dusted black scales, often only leaving pale apical streaks.
*hyparete hierte, Hub.* Kumaon—Burma. C. (= *indica, Wall.: devaca, M.: metarete, But.*).
4a (1a). Unh or uph with prominent red or yellow basal markings.
4b (6a). Uph and unh prominent large yellow spot base 7.
4 (5). Unf no well defined sub-apical pale spots.
α. Upf whole of outer half white and on uph there are broad white streaks.
*sanaca sanaca, M.* (70-85). The Pale Jezabel. Kulu—Kumaon. NR. (= *flavalba, Mar.*).
β. Much darker and smaller.
*sanaca perspicua, Fruh.* (65-75). Sikkim—Dawnas. VR.
5 (4). Unf with well defined small white spots. Above black with white spots: variable.
α. Uph prominent yellow tornal area joining a broad white discal band.
**belladonna belladonna, F.* (70-85). The Hill Jezabel. Kulu—Kumaon. NR. (= *amarantha, surya, Mitis.: horsfieldii, Gray.: boyleae, hearseyi, But.*).
β. Darker. Uph tornal yellow area reduced, not joining the white discal band, which is very narrow.
*belladonna ithiela, But.* Sikkim. NR.
γ. Larger and very dark. Uph no yellow tornal area.
*belladonna berinda, M.* Assam. NR.
δ. Smaller. As α but unh spots much reduced, spot in cell small.
*belladonna burmana, Evans.* N. Burma—Ataran. NR.
6a (4b). Unh basal spot red, not yellow.
6 (7a). Unh red basal marking confined to a spot base 7. ♂ above dead white. ♀ upf black, white spot end cell and row post discal spots; veins may be broadly pale; uph white to yellow with more or less broad, white spotted, dark border. Below both sexes nearly as ♀ above.
**descombesi leucacantha, Fruh.* (80-85). The Redspot Jezabel. Sikkim—Burma. NR. (= *auriga, leucogæa, Fr.*).
7a (6). Unh red basal marking extends from costa to dorsum.

**B6. Delias.—The Jezabels. (Plate 8)—*contd.***

7 (8). Uph no red basal colour. Upf pale spot end cell small, confined to base 4; inner edge pale submarginal streaks in line. Unh outer half cell yellow.

**aglaia*, *L.* (70-85). The Redbase Jezabel Nepal. Sikkim—Burma. NR. (= *pasithæ*, *L.*: *beata*, *Fr.*).

8 (7). Uph prominent red basal area. Upf spot end cell very large; pale submarginal streak in 3 shifted in. Unh only extreme end cell yellow.

α. Paler and pale markings more extensive. Uph tornal area pale cream; unh pale area uniform, bright yellow.

*thysbe kandha*, *Doh.* (80-100). The Redbreast Jezabel. Madras. R.

β. Uph tornal area ochreous. Unh pale area tornally ochreous, apically white.

*thysbe pyramus*, *Wall.* Simla—Burma. NR.

**B7. Prioneris.—The Sawtooths. (Plate 8).**

1 (2a). Below no red markings. ♂ upf white with broad, white spotted black apex. ♀ as B6.5, but has 4 prominent small white spots in an oblique curve towards end cell, which spots appear unf in ♂ and ♀. Unh black with yellow spots. DSF much smaller and unh almost all yellow.

**thestylis*, *Db.* (70-90). The Spotted Sawtooth. Mussoorie—Burma. NR. (= *watsoni*, *Hew.*: *seta*, *M.*: *jugurtha*, *Fr.*).

2a (1). Unh yellow with red markings. Above white, all veins F and outer half H black.

2 (3). Unh prominent marginal row red spots, inwardly black bordered. Almost exactly as B6.2.

**sita*, *Fd.* (80-90). The painted Sawtooth. Ceylon, S. India. R.

3 (2). Unh white or yellow spots along margin; prominent red spot at base. ♀ upf veins broad black towards apex; uph postdiscal and submarginal dark band.

**clemanthe*, *Db.* (80-90). The Redspot Sawtooth. Sikkim—Burma. R. (= *helferi*, *Fd.*).

**B8. Belenois.—The Pioneers. (Plate 7).**

Above white, black spot end cell, dark apex F and margin H. Unh yellow with black veins.

α. Above dark apex F and margin H very broad, obscurely white spotted in ♂, unspotted in ♀; costa above cell F dark. Unh dark orange.

*mesentina taprobana*, *M.* (40-55). The Pioneer. Ceylon. C. (= *fervidior*, *Fr.*).

β. Above dark apex F and margin H broadly white spotted (DSF more than WSF). Unh bright yellow (WSF) to white (DSF); margin narrow and with large spots of the ground colour.

**mesentina mesentina*, *Cr.* All India except Assam. C. (= *lordaca*, *Walker.*: *aurigena*, *But.*).

**B9. Huphina.—The Gulls. (Plate 8).**

Above white, more or less black veined.

1a (3). Unf always black spot mid 3, separated from the black border by a white spot.

1 (2). Uph tornal area broad orange. Unh bright yellow with broad brown border and apex unf.

**lea*, *Db.* (40-55). The Orange Gull. Karens—S. Burma. C.

2 (1). Uph no tornal orange area.

α. Small. Upf black apex prominently white spotted, often yellow, in WSF ♀

*nerissa evagete*, *Cr.* (40-55). The Common Gull. Ceylon, S. India—Central Provinces and Bengal. C. (= *zeuxippe*, *Cr*).

β. Large. Upf black apex practically unspotted, spotting never yellow. ♀ uph submarginal markings grey.

**nerissa phryne*, *F.* (50-65). Sikkim—Assam. C. (= *coronis*, *Cr.* : *hira*, *M.* *pallida*, *Swin.*)

**B9. Huphina.—The Gulls. (Plate 8)—*contd.***

γ. Small. Upf black apex unspotted. Unh DSF white with broad grey veins. WSF unf basal half costal margin and unh costal and dorsal margin suffused bright yellow or greenish.

*nerissa dapha*, *M.* (50-60). Burma. C. (= *copia*, *Wallace*).

δ. Large. Upf margin unspotted. Unh mostly moss green with pale streaks between veins very narrow or absent.

*nerissa lichenosa*, *M.* (55-65). Andamans. C.

3 (1a). Unf no detached black spot mid 3.

α. Unh no pale streak in or beyond cell ; WSF very dark green with broad dark brown discal area.

*nadina cingala*, *M.* (55-65). The Lesser Gull. Ceylon. R.

β. Unh paler ; DSF pale yellow brown with darker discal areas ; WSF base broad yellow, outer area dark brown.

**nadina remba*, *M.* S. India *R.* (= *liquida*, *Swin.*).

γ. Unh WSF long pale streak in cell and extending into bases 4 and 5 ; DSF very pale with brown dark veins. Upf dark apex narrower.

*nadina nadina*, *Luc.* Sikkim—Burma. NR. ( = *nama*, *amboides*, *M.* : *amba*, *Wallace*).

δ. As γ, unh pale streak shorter, confined to end cell and bases 4 and 5.

*nadina andamana*, *Swin.* Andamans. NR.

**B10. Appias.—The Puffins and Albatrosses. (Plate 8).**

1a (6a). F upper apex cell right angled.

1b (4a). Unh always a tiny black spot at end cell and minute black spot on termen between veins.

1 (2a). Upf no white spots on the black apex ; a black spot end cell and traces of a spot mid 3 ; in ♀ prominent spot mid 3 conjoined to apical black band. Uph ♀ black marginal spots. Apex F produced and margin crenulate below. ♂ no abdominal hair pencils, as in rest.

**lalassis*, *GrS.* (65-75). The Burmese Puffin. S. Shan States—S. Burma. R. ( =*indroides*, *Hon.*).

2a (1). Upf always white markings on the black apex. Apex F produced, margin faintly crenulate below.

2 (3). Unf always large black spot end cell. Upf and unf large black spots mid 3, separated from dark margin by a white spot.

α. Upf ♂ black spot end cell separated from spot mid 3 ; ♀ continuous dark band from base cell absorbing spot end cell and mid 3 ; in DSF this band indicated.

**lalage lalage*, *Db.* (55-80). The Spot Puffin. Mussoorie—Tavoy. NR. (= *argyridina*, *But.* : *durvasa*, *pseudolalage*, *M.* : *confluens*, *Fr.*).

β. Upf ♂ with dark band as in ♀ of α.

*lalage lagela*, M. Mergui—S. Burma, R.

3 (2). Unf no large black spot end cell. Upf and unf no detached spot mid 3.

α. Upf only two white spots on the black border. Unf ♂ black preapical band as wide as pale apex. ♀ uph only base 4 white.

**indra narendra*, *M.* (60-70). The Plain Puffin. Ceylon. R.

β. Paler below. ♂ uph no black terminal spots.

*indra shiva*, *Swin.* S. India. R. (= *statilia*, *Fr.*).

γ. Upf DSF ♂ complete row apical white spots. Unf black preapical band = ½ width pale apex. ♀ uph bases 4 and 3 white. Below much paler.

*indra indra*, *M.* Nepal—Burma. NR. (= *imbecilis*, *mahana*, *M.*).

4a (1b). Unh no small black spot end cell nor on termen between veins, F apex produced in ♂ ; termen never crenulate. In ♂ veins at apex upf black ; in ♀ cell all dark and joined to marginal dark band along 4.

4 (5). Unh no broad dark chocolate marginal area.

α. Small, ♂ upf veins only dark at margin and not inwardly edged by a dark band. Below white or pale yellow. ♀ upf no pale spots on the dark border.

*libythea libythea*, *F.* (50-60). The Striped Albatross. Ceylon, India. R. (= *zelmira*, *Cr.* *ares*, *relexta*, *Swin.*).

β Large, ♂ upf dark veins more extended at apex, inwardly bordered by a narrow dark band. WSF below pale yellow brown to white ; veins, dark at apex unf as well as v8 mv and v7 unh, a narrow curved dark band through

**B10. Appias.—The Puffins and Albatrosses. (Plate 8)—*contd.***

end cell beyond which all veins are dark. In DSF underside may be unmarked. ♀ upf prominent white spots on the dark border ; unh in WSF dark veins and band broad yellow.

*olferna, Swin.* (55-65). Bengal—Assam—Burma. Nicobars. R. (= *irvinii, Swin : sopara, Fr.*).

5 (4). Unh yellow, margin broadly dark chocolate. ♂ uph dark margin inwardly bluish edged. Unf prominent yellow apical spot on the dark margin. ♀ mostly blackish brown : upf prominent white stripes in 1 and 2, 4 and 5 ; uph discal area whitish.

α. ♂ above dark margins very broad and inwardly very dentate.

*lyncida taprobana. M.* (55-70). The Chocolate Albatross. Ceylon. R. (=

β. ♂ above dark margin narrow and still inwardly dentate ; unh dark margin very broad, reaches end cell ; vs 6 and 7 prominently dark brown.

*lyncida latifasciata, M.* S. India. R.

γ. Above ♂ variable, margin hardly dentate on H. Unh dark margin very narrow. WSF large ; DSF small.

**lyncida hippoides, M.* Sikkim—Burma. C. (= *vacans But : epicæna, Swin ; lurida, Cr.*).

δ. Paler. Unf apical spot on dark border white. ♀ uph outwardly greenish.

*lyncida nicobarica, M.* Nicobars. R. (= *zalbana, Fr*).

6a (1a). F upper apex cell highly acute.

6b (8, 9). ♂ above white ; ♀ white or yellow, spotted black apex on upf.

6 (7). ♂ upf no postdiscal black spot in 3. Apex F pointed and termen straight. ♂ upf blackish scaling at apex and base very narrow or absent. ♀ always 5 apical spots ; unf inner edge dark apical area irregular, space 5 broadly pale at base.

α. ♀ typically white; 2nd form yellow both sides. 3rd form yellow unh. Smaller.

*albina principalis, Fr.* (55-70). The Common Albatross. Ceylon. NR. (= *norma, Evans*).

♀ *v. flava, Rob.* NR.

♀ *v. semiflava, Fr.* NR.

β. ♀ always white above : 2nd form yellow below. Larger.

**albina darada, Fd* (60-75). S. India—Sikkim Burma. Andamans. R. (= *confusa, Fr. : swinhoei, M.*)

♀ *v. semiflava, Fr.* R.

7 (6), ♂ upf except in α with a black spot in 3.

α. ♂ very like No, 6, but black scaling more extensive and may even enclose a black spot in 3 ; apex not so sharp and termen concave. ♀ not more than 3 spots on the dark apex ; below typically white, but 2nd form is yellow with more or less distinct discal black spots unh ; inner edge black apical area regularly curved and at most only just enters base 5.

*paulina, galene. Fd.* (55-75). The Lesser Albatross. Ceylon. NR. (= *neombo, Bdv : venusta, M. : fasciata, Fr.*).

♀ *v. lankapura. M* NR.

β. ♂ upf dark apex encloses 5 pale spots, costa black. ♀ as typical form of α.

*paulina wardii, M.* S. India. R. (= *yaksha, Fr*).

γ. ♂ as β but very variable ; unf spot in 3 prominent, though rest of black apex may be absent. ♀ WSF as ♀ of β, but usually 4 spots on the black apex ; DSF as ♂.

*paulina adamsoni, M.* Burma. NR. (= *melania, Auct.*).

δ. ♂ upf and unf unmarked except for black spot in 3, which may be obsolete above. ♀ as ♀ of γ and distinguished from ♀ of No. 6 α by space 5 being all dark unf.

* *paulina galathea, Fd.* Andamans and Nicobars. NR. (= *roepstorfii, M.*).

8 (6b, 9). Above orange to deep crimson lake. ♂ upf with apex blackish and more or less prominent black spots between veins on disc. ♀ broad black margin F and H and irregular black discal band.

* *nero galba, Wall.* (65-80). The Orange Albatross. Sikkim—Burma. R. (= *figulina, But. : nebo, GrS*).

9 (6b,8). Above yellow ; ♂ paler on F. ♂ upf termen and costa narrow black. ♀ broad dark terminal and costal margin F and termen H. Unh whitish. F vs short in ♂, absent in ♀.

*panda chrysea, Fruh.* (50-60). The Nicobar Albatross. Nicobar. VR.

**B11. Catopsilia.—The Emigrants. (Plate 9).**

1a (4a). Below not closely striated with brown strigæ.
1b (3). Uph pale yellow or white. ♂ without, ♀ with, postdiscal dark band upf and spot end cell.
1 (2). Antennæ black. ♂ upf very narrow continuous black margin below apex and edge costa narrow black to base; below yellow, unmarked. ♀ very variable, but always with costa black from apex to base, usually conjoined to spot end cell.
**crocale, Cr.* (55-75). The Common Emigrant. Ceylon, India, Burma, Andamans. VC. (= *alcmeone, jugurtha, Cr.: hira, Swin.: flavescens, Fr*).
2 (1). Antennæ red. ♂ upf narrow black margin below apex macular and edge costa only black at apex; below greenish white with prominent red ringed silver spot end cell F and H and base 5 H. ♀ more sulphur yellow above, marginal band narrow and inner edge dentate; costa only black near apex; below often with large reddish purple blotches end cell F and above end cell H.
*pomona, F.* (55-80). The Lemon Emigrant. Ceylon, India, Burma, Andamans. VC. ( = *aserrata, ciscia, citronella, nivescens. serrata, Fr.*).
♀ *v. catilla, Cr.* With purple blotches below. C.
3 (1b). Uph entirely orange. Below sulphur yellow.
**scylla, L.* (60-65). The Orange Emigrant. S. Burma. C.
4a (1a). Below closely covered brown strigæ.
4 (5). Uph marginal dark border below apex continuous and often broad. Above greenish white.
*pyranthe minna, Herbst.* (50-70). The Mottled Emigrant. Ceylon, India, Burma, Andamans. VC. ( = *alcyone, Cr*).
5 (4). Upf marginal dark border below apex macular, always narrow, sometimes brown. Above white.
** florella gnoma, F.* (50-70). The African Emigrant. Ceylon, India, Burma, Andamans. C. ( = *chryseis, But*).

**B12. Gandaca.—The Tree Yellow. (Plate 9).**

♂ pale yellow; ♀ nearly white. Unmarked except for black apex and margin upf.
α. Upf dark margin narrow, not below v4 or 3.
*harina assamica, M.* (35-45). The Tree Yellow. Sikkim—Assam. NR.
β. Upf dark margin wider, to v3 or dorsum.
**harina burmana, M.* Burma. NR.
γ. Always larger. Border moderately broad.
*harina andamana, M.* Andamans. NR.

**B13. Dercas.—The Sulphurs. (Plate 9).**

1 (2). H angled at v4. Upf and unf large dark apical patch, extending below v 5.
α. Large, ♂ strongly crenulate at and below apex. ♀ pale yellow to white.
**verhueli doubledayi, M.* (60-70). The Tailed Sulphur. Sikkim—N. Burma NR. ( = *pallidus, Fr*).
β. Much smaller. ♂ termen not produced at apex and only slightly crenulate below. ♀ white.
*verhueli parva, Evans.* (50-60). Dawnas—S. Burma. R.
2 (1). H not angled at v4. F apical dark patch very small, not below v6. Upf prominent dark brown spot in 3.
**lycorias, Db.* (50-60). The Plain Sulphur Sikkim—Assam. R. ( = *wallichii, Db*).
*v. decipiens, DeN.* Upf spot in 3 absent. (=*brindaba, Swin.*).

**B14. Gonepteryx.—The Brimstones. (Plate 9.)**

1a (3). F, v6 nearer end cell than junction of 7 and 8; dcvs angled at their junction. Wings not crinkly. H termen not toothed at v4.
1 (2). ♂ above uniform sulphur yellow; ♀ creamy white. Uph orange spot end cell prominent and not dark edged. Below ♂ pale yellow green, ♀ greenish white.
**rhamni nepalensis, Db.* (60-70). The Common Brimstone. Chitral—Shan States. VC.

**B14. Gonepteryx.—The Brimstones. (Plate 9).—*contd.***

2 (1). ♂ above basal ½ F yellow, outer ½ and all H, except base white. ♀ chalky white. Above no spot end cell F, on H obscure brown. Below pale yellow, no green tinge; small discal brown spots prominent towards apex F and on H. H tooth at v3 twice as long as tooth at v2.

*farinosa chitralensis, M.* (55-60). The Chitral Brimstone. Chitral. R.

3 (1a). F v6 nearer junction 7 and 8 than end cell; 11 and 12 close; dcvs in line. Wings crinkled. H termen prominently toothed at v1, between 1 and 2, v2, long tooth at 3 and 4.

α. ♂ upf yellow, uph cream white. ♀ F and H cream white. Above orange spots end cells smaller and dark ringed, F costa concave in middle.

*aspasia zaneka, M.* (50-55). The Lesser Brimstone. Kashmir—Kumaon. NR.

β. ♂ above yellow, paler outwardly; ♀ pale yellow white. F. costa straight.

*aspasia zanekoides, DeN.* S. Chin Hills. R.

**B15. Terias.—The Grass Yellows. (Plate 9).**

1a (4a). Below no ring spot end cells and no spots in cell F. Upf black border not continued along v1.

1 (?a). Unf 2 small spots end cell. No ♂ brand. Above black border F and H usually broad and inner edge regular.

**libythea, F.* (30-40). The Small Grass Yellow. Ceylon, India, Burma, VC. (= *drona M.: rubella, Wallace*).

2a (1). Unf single small spot end cell. ♂ uph base 7 and unf base 1 a salmon brand.

2 (3) Upf marginal band reaches dorsum. Uph black margin to v1 or further. Apex F rounded.

α. Always smaller.

*venata venata, M.* (30-40). The Spotless Grass Yellow. Ceylon, India. VC. (= *cingala, pallitana, rama, M.*).

β. Always larger.

*venata sikkima, M.* (35-45). Sikkim—Burma. VC.

3 (2). Upf marginal band ends at v2. Uph dark margin consists of only 2 spots at apex. Apex F sharply angled, termen straight; H apex produced.

*laeta, Bdv.* (35-45). The Short Bordered Grass Yellow. Ceylon, India. Burma. VC. (= *pseudolæta, Fr.*).

4a (1a). Below large irregular ring spot end cell F and H. ♂ unf narrow grey brand either side of niv from base to origin v2. Upf black margin always to tornus and continued along v1; except in DSF excavated between vs 2-4.

4b (8). Upf margin not continued along dorsum to base.

4 (5a, 7). Unf 3 spots in cell. Unh usually spot extreme base 7.

α. Upf black margin always comparatively broad.

*blanda silhetana, Wall.* (40-50). The Three Spot Grass Yellow. Ceylon, India, Burma, Andamans. C. (= *heliophila, But.: cadelli, citrina, davidsoni, grandis, roepstorfii, rotundalis, uniformis, M.: templetoni, But.*).

β. DSF margin very narrow, inwardly evenly curved.

*blanda moorei, But.* Nicobars. NR.

5a (4-7). Unf 2 spots in cell, but one or even both may be absent. DSF with rusty spots below as in No. 4.

5 (6). Unf apical area not entirely brown.

α. Generally smaller and yellower.

*hecabe simulata, M.* (40-50). The Common Grass Yellow. Ceylon, South India. C.P. VC. (= *aesiopiodes, M.: asphodelus, narcissus, swinhoei, But.*).

β. DSF with very narrow margin upf.

**hecabe fimbriata, Wall.* Punjab—Chitral—Kumaon. VC. (= *simplex, But.: apicalis, excavata, irregularis, purreea, M.*).

γ. Generally larger.

*hecabe hecabe, L.* Bengal—Sikkim—Burma. VC. (= *hecabeoides, Men.: contubernalis, fraterna, kana, merguiana, patruelis, pulla, M.: curiosa, Swin.*).

δ. DSF, particularly ♀ very much paler.

*hecabe nicobariensis, Fd.* Andamans—Nicobars. VC. (= *blairiana, M.*).

6 (5). Unf apical area entirely brown.

**B15. Terias.—The Grass Yellows. (Plate 9)—*contd.***

*lacteola sarinoides, Fr.* (40-50). The Scarce Grass Yellow. Sikkim—S. Burma. R.

7 (5a, 4). Unf a single zig-zag spot in cell and a spot towards tornus in 1. Below not speckled with scattered black scales apart from the markings; never with rusty spots; unf apex always marked with brown; unh never a spot base 7 and often ring spot near base cell absent.

α. Unf apical dark area does not reach margin.

*sari ormistoni, Watkins.* (40-45). The One Spot Grass Yellow. Ceylon—S. India. Sikkim—Karens. R.

β. Unf apical dark area as often as not reaches margin, forming a large apical patch.

**sari sodalis, M.* Dawnas—S. Burma. NR. (= *andersoni, M.*).

γ. Unf apex as in α. Upf inner edge of dark margin produced in 8 causing it to be at right angles to costa, instead of evenly curved.

*sari andamana, M.* Andamans, Nicobars. NR

8 (4b). Upf black margin continued along dorsum to base. Unf no spot in cell and unh discal band in a regular line.

*tilaha, Hors.* (40-45). The Malay Grass Yellow. Mergui. VR.

**B16. Colias—The Clouded Yellows. (Plate 9).**

1a (8a). Above yellow, orange yellow or white.

1b (4a). Unh spot end cell white.

1 (2a). Upf no spot end cell. ♂ pale sulphur yellow with uniform broad black border. ♀ paler with yellow marginal spots.

*marcopolo, GG.* (42). Marcopolo's Clouded Yellow. Thui Nallah, Gilgit. VR.

2a (1). Upf always dark spot end cell.

2 (3). Cilia and costa F and H white. Above ♂ pale greenish, with black veins; ♀ white to pale greenish on F. Upf pale marginal spots complete, but spot in 3 smaller than rest. Uph spot end cell white; traces of postdiscal and marginal dark band or spots. Unf decreasing discal black spots 1-3. Unh green, margin pale.

*alpherakii chitralensis, Ver.* (50-55). The Green Clouded Yellow. Chitral VR.

3 (2). Cilia and costa F and H pinkish, as in rest. Above orange yellow; margins in ♂ very broad, up to cell F, and are spotless; ♀ obscurely spotted in 2, 4 and 5; uph much darkened, prominent orange spot end cell. Unf decreasing discal spots 1-3. Unh uniform green, margin not paler.

*wiskotti, Stg.* (50-55). The Broad Bordered Clouded Yellow. Chitral. VR.

4 (1b). Unh spot end cell never entirely white.

4b (6a). Upf ♂ ♀ submarginal row pale spots complete, and all of equal size. Uph more or less complete postdiscal dark band. Unh red brown spot end cell.

4 (5). Uph no pale spot end cell and margin entirely pale. Above ♂ lemon yellow, ♀ yellowish white. Upf submarginal spots joined to margin. Unf complete postdiscal row dark spots. Unh greenish brown, broad pale yellow margin, inwardly bordered obscure dark spots on the dark area.

*thrasibulus, Fruh.* (35-45). The Lemon Clouded Yellow Ladak. VR (= *elwesi, Rob.: leechi, El.*).

5 (4). Uph usually orange spot end cell and at least with blackish spots near apex. Above ♂ bright yellow, ♀ orange yellow. Upf yellow submarginal spots not joined to the margin. Unf discal black spots only in 1-3. Unh dark green margin broadly paler.

*ladakensis, Fd.* (45-50). The Ladak Clouded Yellow. Kashmir—Kumaon R. (= *shipkee, M.*).

6a (4b). Upf either no pale submarginal spots, or, if present, spot in 3 is smaller than rest or absent.

6 (7). Uph much darkened with complete postdiscal band and large yellow marginal spots separated by veins; prominent yellow spot end cell. ♂ ♀ upf dark border prominently spotted. Above ♂ clear yellow; ♀ orange yellow. Unh yellow green, margin broadly paler.

**B16. Colias—The Clouded Yellows. (Plate 9).**—*contd.*

**berylla, Faw.* (45-55). The Everest Clouded Yellow. Chumbi Valley—Sikkim. R.

7 (6). Uph not darkened, postdiscal band and submarginal yellow spots not below v6, but the marginal dark band may be very broad and continuous ; spot end cell orange. Unh yellow, more or less black dusted and with a discal row of brown spots.

α. ♂ unf dark apex broader, with pale spots small ; above yellow. ♀ white, base F and all H dusky, border F as ♂.

*hyale nilagiriensis, Fd.* (45-50). The Pale Clouded Yellow. S. India. C.

β. Very variable, ♀ typically yellow with margin upf spotted ; ♂ typically as ♀.

**hyale hyale, L.* (45-55). Baluchistan—Chitral—Kumaon. C.

♂ *v. erate, Esp.* Upf dark margin unspotted. NR. (=*lativitta, M.: glicia, Fr.*).

♀ *v. pallida, Stg.* White. C.

*v. chrysodona, Bdv.* Orange yellow. Baluchistan—Chitral. R.

8a (1a). Above orange red or orange.

8b (11). Uph no brand in ♂.

8 (9a). ♂ ♀ with yellow spotted border. Above clear orange. Uph only discal area blackish. Upf marginal yellow spots conjoined to termen by narrow yellow lines. Unh green, prominent reddish spot end cell and discal row.

*dubia, El.* (40). The Dwarf Clouded Yellow. Chumbi Valley. VR.

9a (8). ♂ border unspotted.

9 (10). Small. Above clear orange. ♀ uph blackish, orange spot end cell prominent and elongated towards termen. Unh as No. 7.

α. ♂ black border above broad.

*stoliczana stoliczana, M.* (40). The Orange Clouded Yellow. Kashmir. Ladak. NR.

β. ♂ black border narrow. ♀ upf veins black ; uph completely black except for orange spot end cell and marginal orange spots.

*stoliczana miranda, Fruh.* Chumbi Valley. VR.

10 (9). Large.

α. As β but smaller and not so brilliant. ♀ uph not so dark.

*eogene shandura, Evans.* (40-50). The Fiery Clouded Yellow. Chitral. NR.

β. Above fiery orange red. ♀ uph black, prominent orange red spot end cell and submarginal row yellow spots. Unh green, margin broadly yellow green.

*eogene eogene, Fd.* (45-55). Kashmir. R.

♀ *v. cana, GG.* Above bluish white.

γ. Above dark dusky orange, with small yellow submarginal spots in ♂. Unh bluish green ; spot end cell small and mostly whitish.

*eogene leechii, Groum.* (40-50). Ladak. R.

11 (8b). Uph ♂ a yellow brand base 7. Above bright orange, ♂ border unspotted, ♀ yellow spotted. Unh greenish yellow : prominent double red edged silver spot end cell and discal row red spots.

α. Small. Paler, more orange yellow.

*croceus croceus, Four.* (44-50). The Dark Clouded Yellow. Baluchistan. VC. (=*edusa, F.*).

♀ *v. helice, Hub.* Above whitish. R.

β. Small. Bright orange.

*croceus edusina, But.* (45-50). Chitral—Kumaon—N. Punjab. VC.

γ. Large. ♀ often orange pinkish.

*croceus fieldii, Men.* (45-65). Sikkim—N. Burma. C.

(Note.—*phicomone phila, Fruh.*, was described in error from Kashmir)

**B17. Ixias.—The Indian Orange Tips. (Plate 9).**

1 (2). Above white. ♂ ♀ upf apical band always orange. WSF ♂ preapical orange patch enters upper end cell and reaches below v2. DSF orange patch not into cell or below v2.

*marianne, Cr.* (50-55). The White Orange Tip. Ceylon—S. India—Punjab and Kumaon. C. (= *agnivena, M.: depalpura, But.: cumballa, meridionalis, nola, Swin.*).

2 (1). Above yellow ; orange patch not below v2. ♀ may be white.

α. Small. Upf base of 3 and half of 2 yellow. ♀ yellow, band orange to yellow.

**B17. Ixias.—The Indian Orange Tips. (Plate 9).—*contd.***

***pyrene cingalensis, M.*** (50-60). The Yellow Orange Tip. Ceylon. C. (= *connectens, nivescens, Fr.*).

β. Similar. ♂ apical band broader and not angled in ♀.

***pyrene frequens, But.*** S. India—Bengal. C. (= *colaba, jhoda, Swin.*).

γ. Small usually. Upf base 3 rarely yellow; half to two-thirds of 2 yellow. ♀ often white.

****pyrene sataδra, M.*** Punjab—United Provinces—Chitral—Kumaon. C. (= *dharmsalæ, watti, But.: kausala, pygmæa, M.*).

δ. Often large, very variable. Upf orange enters lower end cell; base 3 never yellow and only extreme base 2. ♀ very variable sometimes nearly entirely suffused black scales on a white ground and the apical band white; or ground colour yellow and the band white.

***pyrene pirenassa, Wall.*** (55-70). Sikkim—Assam. C.

η. Smaller than last and more or less intermediate between last two. Orange colour not in lower edge cell. ♀ band yellow or orange and ground colour often white.

***pyrene latifasciata, But.*** (50-60). N. Burma—Dawnas. C. (= *verna, Druce; citrina, pallida, moulmeinsis, M.*).

ξ. Much paler, lemon yellow. Orange area often clouded, presenting a dull frosted appearance. ♀ band always orange; cell F more or less black. Much more constant.

***pyrene meipona, GrS.*** (50-60). Dawnas—S. Burma. C.

ε. As last, larger. Orange apex deeper and not so wide; often yellow spot base 3.

***pyrene andamana, M.*** (55-65). Andamans. C. (= *lena, Swin.*).

**B18. Celotis.—The Arabs. (Plate 9).**

1 a (4a). Upf prominent dark spot end cell, which is always conjoined to the dark costal area extending to base. ♂ dorsum F more or less bowed.

1 (2a). Upf marginal dark band shifted in 1, so as to enclose a large pale spot. Above salmon, margins broad black, spotted with the ground colour. ♂ uph costa broad black and the scales towards base 7 modified.

α. Upf semi-detached spot in 1 small, not quadrate; pale spots on margin small.

****amata modesta, But.*** (35-45). The Small Salmon Arab. Ceylon—S. India—Bengal. NR.

♀ *v. albina, Evans.* Above white. NR.

β. Upf semi-detached black spot in 1 large, quadrate; pale spots on margin large.

***amata amata, F.*** (35-50). Bombay—Sind—United Provinces. Punjab. NR. (= *calais, Cr.: cypraea, F.: carnifer, But.: dynamine, Klug.: kennedii, Swin.*).

2a (1). Upf dark margin regular to dorsum, bearing no pale spot below v3 F and H.

2 (3). Above salmon, black border bearing blueish spots at apex upf; base F and dorsum H suffused blue grey. ♂ uph large salmon brand base 7; unf similar small patch near base 1.

***protractus, But.*** (40-45). The Blue Spotted Arab. Cutch—Sind—Baluchistan—Punjab. NR. (= *phisadia, Auct.*).

3 (2). Above white; black border upf shifted in in 3, enclosing large white spot. No ♂ brand.

****vestalis, But.*** (40-50). The White Arab. Baluchistan—United Provinces. NR. (= *intermissus, ochreipennis, puellaris, But.: dubius, peelus, rorus, Swin.*).

4a (1a). Upf dark spot end cell, if present, detached (except rarely ♀ of No. 4 α.); dark border only reaches dorsum narrowly or not at all.

4 (5a). Above salmon, ♀ may be white; uph unmarked except for dark margin. Upf prominent spot end cell and dark apex with spots of the ground colour. ♂ unf prominent dark brown brand towards base 1, correlated to a nacreous area base costa uph.

α. Upf black apical area encloses 3 spots and reaches tornus. ♀ white.

****fausta fulvia, Wall.*** (45-55). The Large Salmon Arab. Ceylon—S. India NR. (= *palliseri, tripuncta, But.: surya, M.*).

**B20. Pareronia.—The Wanderers.**

with v6, which is also very wide, as also is v6 usually. ♀ upf submarginal spot and discal streak in 3 shifted in; always streak in 9, which with streaks in 4, 5 and 6 form an oblique row. Uph submarginal spot and discal streak in 6 separate.

2 (3). ♂ above margins usually unspotted; if spotted, spots very small and not increasing to apex; WSF. much rounder. ♀ usually bluer, submarginal spots smaller, uph submarginal spot in 7 prominently larger than rest.

*a*. ♂ upf no prominent white spot at apex.

*ceylanica ceylanica*, *Fd.* (65-80). The Dark Wanderer. Ceylon—S. India. NR. (= *compacta*, *But.*: *fraterna*, *pingasa*, *spiculifera*, *M.*).

β. ♂ upf always small white spot at apex. ♀ whiter.

*ceylanica naraka*. *M.* Andamans. NR.

3 (2). ♂ upf margins prominently spotted and spots increasing to apex, ♀ whiter, marginal spots prominent; cilia much whiter and upf apex paler.

* *valeria hippia*, *F.* (65-80). The Common Wanderer. India—Burma. C. (= *gaea*, *Fd*).

♀ *v. philomela*, *F.* Uph discal area yellow. R. (= *livilla*, *Fr.*).

**B18. Colotis.—The Arabs. (Plate 9)—*contd.***

β. Upf black apical area not enclosed at lower end and not to tornus. ♀ pale salmon.

*fausta fausta, Oliv.* Bombay—Baluchistan. Central India—Punjab. NR. (= *faustina, Fd.: oriens, rosaceus, solaris, But.*).

5a (4). Above white with orange or crimson apex (except sometimes ♀ of No. 6). No ♂ brand. ♀ uph more or less dark discal band, always indicated at costa.

5b (7). Upf apex orange and not marked with black spots in ♀.

5 (6). Upf apical orange patch inwardly dark edged; in ♀ dark band upf decreasing evenly to tornus.

α. Upf black edging broader. Uph marginal spots conjoined to form a continuous band.

*etrida limbata. But.* (25-45). The Little Orange Tip. Ceylon. C.

β. Not so heavily marked.

**etrida etrida, Bdv.* S. India—Himalayas. Baluchistan. C. (= *bimbura, casimirus, farinus, pernolatus, purus, But.*).

6 (5). Upf ♂ inner edge apical orange patch not black edged, or, if so very faintly and a dark band shows through by transparency from unf on the orange area. ♀ upf very irregular postdiscal band from costa to v3, between which and the narrow dark margin are 4 pale orange or white contiguous spots.

*eucharis, F.* (40-45). The Plain Orange Tip. Ceylon—S. Central India. C. (= *pallens, M.: pseudevanthe, But.*).

7 (5b). Upf crimson tip, inwardly black edged. ♀ bases suffused blackish scales, apical patch crimson to pale red and bearing a dark postdiscal band on the crimson area.

α. Dark edging to crimson tip broader and margin uph continuous black in WSF.

**danæ danæ, F.* (40–50). The Crimson Tip. Ceylon. S. India—Central Provinces. C. (=*sanguinalis. But.: taplini, Swin.*).

β. Inner edging to crimson tip narrower; margin uph macular.

*danæ dulcis, But.* Sind. (= *dirus, eboroides, But.: alberta, immaculata, subroseus, Swin.*).

**B19. Hebnomoia.—The Great Orange Tip. (Plate 9).**

Large. White. Upf broad orange tip, bearing postdiscal black spots; in ♀ black spots conjoined or nearly so, so as to leave a submarginal series of orange spot.

α. Inner black edging to orange apex obsolete.

*glaucippe ceylonica, Fruh.* (80-100). The Great Orange Tip. Ceylon. C.

β. Inner black edging to orange tip narrow.

*glaucippe australis, But.* S India. C.

γ. Inner black edging to orange tip broad.

**glaucippe glaucippe, L.* Nepal—Burma. C. (=*aturia, Fr.*).

δ. Inner black edging to orange tip obsolete. Above outer half H and lower discal area F pale yellow.

*glaucippe roepstorfii, WM.* Andamans. C

**B20. Pareronia.—The Wanderers. (Plate 9).**

♂ above blue with black borders. ♀ black with blue streaks between the veins.

1 (2a) Pale. Upf ♂ margin unspotted; no pale streak in 9; all veins not prominently black and uph mv no darker than scv. ♀ upf submarginal spots and outer ends discal streaks in line; no streak in 9; uph submarginal spot in 6 and discal streak conjoined.

α. DSF. small; WSF large. ♂ uph border narrow.

**avatar avatar, M.* (60-90). The Pale Wanderer. Sikkim—N. Burma. R. (=*tarina, Fr.*).

β. Small. ♂ uph border wide. ♀ pale streaks wider, streak in 1 joins lower submarginal spot in 1.

*avatar paravatar, DeN.* (60-70). S. Burma. R.

2a (1). ♂ darker; nearly always pale streak in 9; all veins prominently black; uph mv much wider black than scv and bearing modified scales, in line

## *C. DANAIDÆ*

**C. Danaidæ.—The Danaids. Genera key.**

1a (3). H v8 not parallel to v7 and meets costa about origin v7.

1 (2). H pcv from beyond origin v8 ; v6 nearer 5 and 5 nearer 4 ; dcv 5-4 perpendicular. No ♂ brand. Claws with appendages. Antennæ filiform.

*Hestia, Hub.* The Tree-Nymphs. (Plate 10). (=*Nectaria, M.*).

2 (1). H pcv from origin v8 ; v6 nearer 7. With male brand. Claws with appendages. Antennæ more or less clubbed.

*Danais, Lat.* The Tigers. (Plate 10). (=*Limnas, Hub. : Badacara Bahora, Caduga, Chittira, Parantica, Radena, Salatura, Tirumala, M.*).

3 (1a). H v8 parallel to v7 and far from costa, opposite origin v7 ; v6 nearer 7 ; v5 equidistant between 6 and 4 ; dcv 5-4 inclined. With ♂ brand. Antennæ clubbed.

*Euploea, F.* The Crows. (Plates 10 and 11). (=*Crastia, Trepsichrois, Salpinx, Hub. ; Calliploca, Stictoplæa, But. : Danisepa, Isamia, Karadira, Mahintha, Menama, Narmada, Pademma, Penoa, Tiruna, Tronga, M*.),

## KEYS TO SPECIES

**C1. Hestia.—The Tree-Nymphs. (Plate 10).**

1 (2a). F costa prominently black at end v12 ; spots mid cell not zigzag. v10 from just before end cell.

α. Smoky. F discal spots beyond end cell separate ; spot mid cell joined to spot above it.

* *lynceus jasonia, Wd.* (120-140). The Ceylon Tree-Nymph. Ceylon. NR.

β. As α, spot mid cell separate from spot above it.

*lynceus malabarica, M.* (120-160). The Malabar Tree-Nymph Travancore—Nilgiris. NR.

γ. As β but diaphanous white and smaller.

*lynceus kanarensis, M.* (120-140). The Kanara Tree-Nymph. N. Kanara. NR.

δ. Yellowish. F discal spots conjoined.

*lynceus arracana, Fruh.* (110-130). The Arracan Tree-Nymph. Sunderbans—N. Burma. R. (=*margherita, Fr.*).

η. As δ but apex F and margins F and H broad black unspotted.

*lynceus hadeni, WM.* and *DeN.* (120-140). The Bassein Tree-Nymph. Bassein. R.

ξ. As δ but marginal spots H separate, not confluent.

*lynceus agarmarschana, Fd.* The Tavoy Tree-Nymph. Moulmein—S. Burma. NR.

ε. As ξ but smoky and black markings wider ; H 3 equal black spots in 7.

*lynceus cadelli, WM.* and *DeN.* The Andaman Tree-Nymph. Andamans. NR.

φ. Very similar to α.

*lynceus reinwardtii, M.* Mergui. VR.

2a (1). F costa not prominently black at the end of v12 ; spots in mid cell zigzag. Termens F and H evenly convex.

2 (3). Uph detached marginal spots arranged as in No. 1.

*hypermnestra linteata, But.* (140-160). The Malayan Tree-Nymph. Mergui. VR.

3 (2). Uph black border bearing large white spots.

*leuconœ siamensis, God.* (120-160). The Siam Tree-Nymph. Victoria Point. VR.

**C2. Danais.—The Tigers. (Plate 10).**

1a (8a). H v5 usually nearer 4; dcv 5-4 perpendicular. Black with pale blue to white markings. F pale area in cell unbroken transversely; in 2 there are 3 single spots followed by 2 marginal spots which are sometimes obsolete.

1b (4a). ♂ uph large pouch on v2 near margin and smaller one on v1. F cell pale with a dark streak.

1 (2a). Uph 2 detached or conjoined spots in the middle of 6.

α. Pale markings restricted. Upf and uph marginal spots obsolete at apex.

*aglea aglea, Cr.* (70-85). The Glassy Tiger. Ceylon. S. India. C. (=*grammica, Bdv. : ceylonica, Fd.*).

β. Pale markings more extensive and marginal spots complete.

*aglea melanoides, M.* Kashmir—Burma. C. (=*phormion, Fr.*).

γ. Pale marginal markings restricted, discal extensive; H basal spots in 2 and 3 conjoined to discal.

*aglea melanoleuca, M.* Andamans. C.

2a (1). Uph single spot mid 6.

2 (3). Above uniform. H cell with dark streak.

**agleoides, Fd.* (70-75) The Dark Glassy Tiger. Rangoon—S. Burma Nicobars. NR.

3 (2). H basal half yellow; cell immaculate.

*aspasia, F.* (75-85). The Yellow Glassy Tiger. Burma. R. (=*crocea*, But.).

4a (1b). ♂ uph large pouch on v1 near margin and smaller one on v1a.

4b (6). F cell immaculate.

4 (5). Uph margin broad dark chocolate, prominently white spotted.

*melaneus plateniston, Fruh.* (85-95). The Chocolate Tiger. Sikkim—Burma. Nicobars. C. (=*neopatra, Fr.*).

5 (4). Uph margin bright chestnut, obscurely spotted.

α. Pale markings extensive. F basal and discal spots in 2 and 3 conjoined.

*tytia sita, Koll.* (85-105). The Chestnut Tiger. Kashmir—Kumaon. NR.

β. Pale markings more restriced. F basal and discal spots in 2 and 3 well separated.

**tytia tytia, Gray.* Sikkim—Burma. NR. (=*tira, Fr.*).

6a (4b). F and H cell dark with a pale streak.

6 (7). H very sparsely marked, no pale streaks between cell and dorsum.

**fumata, But.* (85-95). The Ceylon Tiger. Ceylon. NR. (=*taprobana, Fd.*).

7 (6). H more marked, with long pale streaks between cell and dorsum.

*nilgiriensis, M.* (80-90). The Nilgiri Tiger. S. India. NR.

8a (1a). H v5 nearer 6 than 4 or equidistant; dcv 5-4 inclined.

8 (9a). F vs 11 and 12 anastomosed. No ♂ brand except that v1 H is thickened and runs in a channel. Black with pale blue markings. F pale streak in cell divided transversely; in 2 there is a single basal and central spot, followed by 2 marginal spots.

α. H prominent streak in cell. Markings wide; streaks beyond cell very wide.

*similis exprompta, But.* (75-85). The Blue Glassy Tiger. Ceylon. NR.

β. All markings narrower.

**similis vulgaris, But.* Bassein—S. Burma. C.

γ. H cell not streaked. Markings very wide.

*similis nicobarica, WM.* and *DeN.* Nicobars. R.

9a (8). F vs 11 and 12 free and parallel.

9b (12a). ♂ uph pendulous pouch in 1 shortly after origin v2. Black with pale blue markings; F pale streak in cell divided transversely; in 2 there is a large basal, 2 central and 2 marginal spots.

9c (11). F no pale streak from base cell along costal vein.

2 (10). F width of streaks beyond end cell not less than half their length.

*limniace mutina, Fruh.* (90-100). The Blue Tiger. Ceylon, India, Burma Nicobars. VC.

10 (9). F width of streaks beyond end cell much less than half their length.

α. Small with narrow markings.

*melissa mesikanos, Fruh.* (85-95). The Dark Blue Tiger. Ceylon. NR.

β. Small, markings wide and pale.

* *melissa dravidarum, Fruh.* S. India. NR.

γ. Large. F produced. Markings narrower and much darker.

*melissa septentrionis, But.* (90-105). Kulu—Burma. C.

**C3. Euploea.—The Crows. (Plates 10 and 11).—*contd.***

γ. Upf apical spots much larger than the discal.

**corus phœbus*, *But.* Moulmein—S. Burma. Nicobars. R. (= *castelnaui*, *Fd.*).

5a (3b). Uph never with spots at bases 2, 3 and 4. (Except No. 6ζ).

5b (8a). Unh no spot base 3. (Except No. 6ζ).

5 (6a). ♂ upf no brand; H shaped as in No. 4. Upf marginal spots absent; postdiscal spots blue, coalesced at apex in 6 and 7. Blue shot; lower area F and all H pale brown.

*mazares ledereri*, *Fd.* (70–80). The Dwarf Crow. S. Burma. R.

6a (5). ♂ upf short brand.

6 (7). This brand dark brown.

α. Not blue shot. Upf marginal spots obsolete, postdiscal spots not enlarged at apex; no discal spots.

*klugii sinhala*, *M.* (85–100). The King Crow. Ceylon. R.

β. As α but marginal spots present upf.

*klugii kollari*, *Fd.* S. India—Bengal R. (= *rothneyi*, *M.*).

γ. Blue shot. Upf marginal and postdiscal spots small, white and discal spots usually absent.

*klugii klugii*, *M.* Sikkim. R.

δ. As γ, very variable. Upf spots bluish and discal spots usually present.

*klugii macclellandi*, *M.* Assam—N. Burma. NR. (= *augusta*, *dharma*, *imperialis*; *indigofera*, *regalis*, *sherwillii*, *M.*: *grantii*, *illustris*, *But.*: *hamiltoni*, *Swin.*).

η. Rarely very obscurely blue shot basally. Upf marginal spots present; postdiscal spots enlarged at apex, discal spots present or absent.

*klugii crassa*, *But.* Chin Hills—S. Burma. NR. (= *erichsonii*, *Fd.*: *apicalis*, *burmeisteri*, *masoni*, *pembertoni*, *uniformis*, *M.*).

ζ. Pale brown, not blue shot. Upf discal spots very prominent and post discal spot enlarged at apex. Very like No. 13.

*klugii rœpstorfii*, *M.* Andamans. VR.

7 (6). ♂ upf brand blue. Blue shot and blue spots upf present or absent. H rather pale brown.

α. Uph marginal spots more or less well developed.

*leucostictos leucogonys*, *But.* (90–110). The Blue-branded King Crow. S. Burma. VR. (= *lazulina*, *M.*: *vestigiata*, *Mar.* and *DeN.*).

β. Uph marginal spots obsolete.

*leucostictos novaræ*, *Fd.* Nicobars. R.

8a (5b). Unh always a spot in cell and base 3.

8 (9a). Upf spot end cell blue, also those beyond, if present. ♂ upf very long dark brown brand.

α. Upf blue shot nearly to termen. Uph marginal and sub-marginal spots obsolete.

*midamus splendens*, *But.* (95–105). The Blue-spotted Crow. Sikkim—Shan States. R. (=*rogenhoferi*, *Fd.*: *irawada*, *M.*).

β. Basal two-thirds blue shot. Uph marginal and sub-marginal spots more or less well developed.

*midamus brahma*, *M.* Karens—S. Burma. NR. (=*adamsoni*, *Mar.*: *margarita*, *But.*: *eclecta*, *noblei*, *Swin.*).

9a (8). Upf spot end cell, if present, white.

9 (10a). Not blue shot. Outwardly conspicuous pale brown. Unspotted above except for a costal and a few discal spots F in ♀. ♂ upf with or without a small dark brand, appearing unf as a long white streak above the yellow area.

*scherzeri*, *Fd.* (95-100). The Cinnamon Crow. Nicobars. NR. (=*camorta*, *M.*: *simulatrix*, *WM.* and *DeN.*)

10a (9). Blue-shot. Uph marginal and sub-marginal spots prominent; upf obsolete or nearly so, never a spot in cell and usually only on costa and in 3, also small apical spot in 6 and 7. ♂ upf no brand, but present unf on the yellow area.

10 (11). H not blue-shot.

*modesta*, *But.* (80-95). The Plain Blue Crow. Dawnas—S. Burma. C. (=*cupreipennis*, *tavoyana*, *M.*).

11 (10). H blue glossed.

**C2. Danais—The Tigers. (Plate 10).—*contd.***

11 (9c). F pale streak from base cell along costal vein.
α. This streak prominent, nearly as long as the streak along the median vein.
*gautama gautama, M.* (90–100). The Scarce Blue Tiger. Burma. R.
β. This streak very short. Smaller.
*gautama gautamoides, Doh.* (75–85). Nicobars. R.
12a (9b). ♂ uph with pouch below v2 shortly after its origin. Tawny.
12b (14). Veins black.
12 (13). H tawny.
*plexippus, L.* (75—95). The Common Tiger. Ceylon, India, Burma, Nicobars. VC. (= *genutia, Cr.*: *nepalensis, M.*: *grynion, Fr.*).
13 (12). H white.
α. Pale markings extensive.
* *melanippus indicus, Fruh.* (80–95). The White Tiger, Bengal, Burma, C. (= *hegesippus, Auct.*).
β. Pale markings reduced ; H no white spot near base 6.
*melanippus nesippus, Fd.* Nicobars. C.
14 (12b). Veins not black.
* *chrysippus, L.* (70–80) The Plain Tiger. Ceylon, India, Burma, Andamans, Nicobars. VC.
*v. alcippoides, M.* Uph more or less white. VR.
*v. dorippus, Cr.* Upf white spotted black apex absent. R. (= *klugii, But.*).

**C3. Euploea.—The Crows. (Plates 10 and 11).**

1a (12a). ♂ uph with an area containing modified scales.
1b (3a). This area is black or dark brown and fills upper outer angle of cell and more than half of spaces 4-6. Unh 2 well separated streaks or spots in 4.
1 (2). ♂ uph small yellow brand base 6 ; no brand upf ; unf yellow brand about v1 near base ; dorsum F slightly bowed. Upf blue shot and blue or white spotted.
α. ♀ uph no white streaks in cell. ♂ upf spots white.
*mulciber kalinga, Doh.* (90–100) The Striped Blue Crow. Madras—Bengal, R.
β. ♀ uph white streaks over whole wing. ♂ upf spots blue.
* *mulciber mulciber, Cr.* Simla—Burma. VC. (= *linnæi, M.*: *duarseri, Rhé Phil.*).
2 (1). ♂ uph no brand ; upf prominent long brand mid 1 ; dorsum F much bowed. Unf no spot base 6. ♂ upf velvet black, very obscurely blue shot, unspotted ; ♀ dark brown with few white spots. Uph postdiscal spots elongated into long streaks.
α. Uph white streaks long.
*alcathæ doubledayi, Fd.* (85–100). The Striped Black Crow. Sikkim—Shan States. NR.
β. Uph white streaks restricted, especially in ♂, where they are dusky.
*alcathæ æsatia, Fruh.* Karens—S. Burma. NR.
3a (1b). ♂ uph modified area yellow or dark brown, confined to a brand at upper outer angle of cell and extending at most into bases of 5-7 ; unf a yellow area of modified scales about v1 near base ; dorsum F much bowed.
3b (5a). Uph with spots at bases 2 and 3 and usually 4. (see No. 6ζ.)
3 (4). Upf very large white spot end cell, extending to costa and uph with white streaks below cell. Blue shot and blue brand in 1.
α. Uph white markings more extensive ; in ♂ enters base 3.
*diocletiana ramsayi, M.* (80-90). The Magpie Crow. Sikkim—Assam. NR.
β. Uph white markings restricted ; in ♂ not into base 3.
**diocletiana diocletiana, F.* Assam—Burma. C. (= *rhadamanthus, F.*: *despoliata, Fr.*).
4 (3) Upf very small spot end cell and uph no white streaks. ♂ upf no brand ; H termen straight and end cell much nearer termen than usual ; lower part termen broadly greasy. Not blue shot. Very large.
α. Upf apical spots no larger than the discal.
*corus corus, F.* (110-130). The Great Crow. Ceylon NR. (= *elisa, But.*)
β. Upf apex suffused broad lilac.
*corus vitrina, Fruh.* Bassein. R.

**C3. Euploea.—The Crows. (Plates 10 and 11).—*contd.***

*camaralzaman, But.* (110-120). The Large Blue Crow. Ataran—S. Burma. VR. (

12a (1a). Uph no area of modified scales.

12b (17a). ♂ upf a single brand or none.

12c (16). Not or only very obscurely blue-shot.

12 (13a). Upf usually only a single marginal and postdiscal spot in 1. ♂ upf brand rarely present; dorsum F much bowed.

α. F marginal and discal spots complete, latter much enlarged at the apex.

**crameri bremeri, Fd.* (85-95). The Spotted Black Crow. Akyab—S. Burma. C. (= *olivacea, M.*).

β. Very variable. Upf marginal and discal spots less developed, discal spots in 6-8 absent or small.

*crameri frauenfeldii, Fd.* Nicobars. NR. (= *esperi, Fd.: biseriata, M.*).

13a (12). Upf usually and unf always 2 marginal and 1 discal spot in 1.

13 (14a). Upf spot in cell and discal spots in 2 and 3 very prominent. Pale brown. ♂ upf brand prominent, dorsum much bowed.

*andamanensis, Atk.* (85-95). The Andaman Crow. Andamans. NR.

14a (13). Upf spot in cell and discal spots in 2 and 3 absent or obscure.

14 (15). Upf apex violet, post discal spots, obscure or absent and marginal ones very small, always a spot base 3. ♂ brand prominent, dorsum somewhat bowed.

*godarti, Lucas.* (85-95). The Violet-tipped Crow. Manipur—Burma. C. (= *defigurata, dominans, recussa, Fr.*).

15 (14). Upf apex plain; postdiscal spots present. ♂ brand upf rather obscure and rarely absent, dorsum slightly bowed.

α. Upf marginal spots nearly obsolete, postdiscal becoming obsolete towards apex, never a spot at base 3.

*core asela, M.* (85-95). The Common Indian Crow. Ceylon. VC.

β. Upf marginal and postdiscal spots prominent, latter more or less equal or decrease slightly to apex; no spot base 3.

*core core, Cr.* India to Himalayas. VC.

γ. As β but postdiscal spots increase in size towards apex; often a spot base 3.

*core vermiculata, But.* N. India—Assam VC. (= *nicevillei M.*).

δ. Upf spotting mean between α and β; outer third conspicuously paler.

*core layardi, Druce.* Akyab—S. Burma. R. (= *binghami, subdita, M.*).

16 (12c). Above blue shot. Upf no marginal or postdiscal spots, rarely white spot in cell, usually one base 3 and sometimes base 2. ♂ upf very long prominent brand, dorsum slightly bowed.

α. Uph marginal and sub-marginal spots incomplete or absent.

*deione deione, Wd.* (95-105). The Long-branded Blue Crow. Sikkim—Shan States. NR. (= *poeyi, Fd.: magnifica, But.: arida, Fr.*).

β. Uph marginal and sub-marginal spots prominent and complete.

*deione limborgii, M.* Karens—Mergui. NR.

γ. Upf blue much darker; uph sub-marginal spots elongated.

*deione menetriesii, Fd.* Extreme S. Burma. VR.

17a (12b). ♂ upf 2 prominent brands. Unf always spot base 6, which is more prominent than the spots in 5 and 4, if latter are present.

17 (18). Upf blue shot and blue spotted.

α. Upf sub-marginal spots large, discal spots usually present. Uph sub-marginal and marginal spots usually incomplete.

*harrisi hopei, Fd.* (95-105). The Double-branded Blue Crow. Sikkim—Shan States. NR. (= *binotata, microsticta, But.: pygmæa, regina, M.: depunctata discalis, Fr.*).

β. Upf sub-marginal spots small, no discal spots; uph sub-marginal and marginal spots prominent.

*harrisi harrisi, Fd.* Karen Hills—S. Burma. NR. (= *grotei, Fd.: crowleyi, M.*).

18 (19). Above not blue shot.

α. Upf sub-marginal spots reduced, becoming obsolete at apex.

*coreta montana, Fd.* (85-95). The Double-branded Black Crow. Ceylon. NR. (= *lankana, M.*).

β. Upf sub-marginal spots prominent.

*coreta coreta, God.* S. India. NR. (= *coreoides, M.*).

## *D. SATYRIDÆ*

**D. Satyridæ. The Satyrids. Genera Key.**

1a (6a). Eyes hairy.

1 (2a). Palpi with appressed hairs. F no veins swollen ; upper apex cell obtusely rounded ; v10 from cell. H v3 from well before end cell.

*Mandarinia, Leech.* The Mandarin. (Plate 11).

2a (1). Palpi with porrect hairs. F v12 swollen.

2 (3a). F v1 and mv swollen ; upper apex of cell highly acute and dcv angled.

*Mycalesis, Hub.* The Bushbrowns. (Plate. 11). (= *Calysisme, Culapa, Gareris, Kabanda, Loesa, Mydosama, Nissanga, Pachama, Sadarga, Samanta, Samundra, Suralaya, Telinga, Virapa, M.: Myrtilus, DeN.: Dasyomma, Fd.*).

3a (2). F v1 not swollen, mv more or less swollen.

3b (5). H vs 7 and 6 well separated at origin.

3 (4). H never symmetrical about a central axis from the base to the middle of the termen, nor is termen convex between vs 4 to 6 ; apex may be angled, costa straight, termen caudate at v4, tornus excavate before v2 ; very variable.

*Lethe, Hub.* The Treebrowns. (Plates 11-12). (*Zophoessa, Db.* and *Hew.: Debis, Hew.: Blanaida, Kir.: Charma, Doh.: Dionana, Enope, Hanipha, Kerrata, Nemetis, Neope, Palala, Putlia, Rangbia, Sinchula, Tansima, M.*).

4 (3). H symmetrical about a central axis, apex, termen and tornus evenly rounded.

*Parargе, Hub.* The Walls. (Plate 12). (= *Lasiommata, Wd.: Amecera, Rhaphicera, But.: Chonala, M.*).

5 (3b). H vs 7 and 6 close at origin. F upper apex cell highly acute and dcvs angled. H v3 from before v4.

*Orinoma, Gray.* The Tigerbrowns. (Plate 12).

6a (1a). Eyes smooth.

6b (25). H no prediscoidal cell.

6c (20a). F mv swollen.

6d (19). Palpi with porrect hairs. H v3 from before and cell.

6e (16a). F upper end cell not longer than lower end.

6f (15). H v8 highly angled at origin, meets scv more or less at right angles.

6 (7a). F v1, mv and v12 prominently swollen. F upper apex cell acute, antennæ club spatulate.

*Cænonympha, Hub.* The Heaths.

7a (6). F v1 not prominently swollen.

7b (9a). F mv prominently swollen ; lower dcv convex.

7 (8). F upper apex cell acute.

*Maniola, Schrank.* The Meadowbrowns. (Plate 13). (=*Chortobius, Guin. : Epinephele, Hub.*).

8 (7). F upper apex cell right angled.

*Eumenis, Hub.* The Rockbrowns. (Plate 13). (=*Nytha, Bill. : Chazara, Philarcta, M. : Satyrus Auct.*).

9a (7b). F mv not swollen (except some *Ypthimas*, but they have the lower dcv F straight or concave).

9b (13a). H termen more or less crenulate and cilia, at least on F, prominently chequered.

9 (10a). F cell short and broad ; v4 curved, ♂ upf brand.

9c (12). H upper dcv 5-6 concave at upper end Unh no ocelli.

*Karanasa, M.* The Satyrs. (Plate 13). (=*Kanetisa, M.*).

10a (9). F cell longer than half the wing ; v4 straight.

10 (11). Above tawny ; no ♂ brand.

*Paræneis, M.* The Mountain Satyrs (Plate 13).

11 (10). Above black : upf ♂ brand.

*Aulocera, But.* The Banded Satyrs. (Plate 13).

12 (9). H upper dcv 5-6 straight. Unh with ocelli.

*Arge, Hub.* The Marbled Whites. (Plate 13). (=*Agapetes, Bill. : Melanargia*

**D. Satyridæ. The Satyrids. Genera Key.**—*contd.*

13a (9b). H termen not crenulate and cilia not chequered (except slightly in some Erebias).

13 (14). F lower dcv convex, v10 arises from cell (except in some Palæarctic species).

*Erebia, Dal* The Arguses. (Plate 13). (=*Callerebia, But.: Dallacha, Hemadara, Paralasa, M.*).

14 (13). F lower dcv straight or concave; v10 always from v7.

*Ypthima, Hub.* The Rings. (Plate 13). (=*Kolasa, Lohana, Nadiria, Pandima, Thymipa, M.*).

15 (6f). H v1 nearly straight at origin, meets scv at an acute angle. F upper apex cell right angled. No male brand.

*Zipœtis, Hew.* The Cats-eyes. (Plate 13).

16a (6c). F upper end cell markedly longer than the lower end; upper apex cell highly acute.

16b (18). H normal. F v10 from cell.

16 (17). H vs 3 and 4 approximate at origin. F lower dcv highly concave

*Orsotriæna, Wallen.* The Niggers. (Plate 13).

17 (16). H vs 3 and 4 well separated at origin. F lower dcv straight. No male brand.

*Erites, Wd.* The Cyclops. (Plate 13).

18 (16b). ♂ H abnormal, vs 7 and 6 forked long after origin v5, which arises shortly after origin v8; dcv represented by an ill-developed vein from origin v2 to scv before origin v5 and in ♂ this dcv is replaced by a narrow channel, not reaching the scv and covered by a recumbent tuft of black hairs. F v10 from v7.

*Ragadia, Wd.* The Striped Ringlets. (Plate 13).

19 (6d). Palpi with appressed hairs. F upper apex cell acute.

*Cælites, Bdv.* The Blue Cats Eyes. (Plate 14).

20a (6c). F no veins swollen.

20 (21a). Palpi with porrect hairs. F upper apex cell right angled. H v3 from end cell.

*Neorina, Wd.* The Owls. (Plate 14).

21a (20). Palpi with appressed hairs.

21 (22a). H v3 from just before end cell. F upper apex cell right angled, lower dcv straight; v10 from cell. No male brand.

*Anadebis, But.* The Diadems. (Plate 14). (=*Ethope, Theope, M.: Euploeamina, Holl.*).

22a (21). H v3 from well before end cell. F upper apex cell rather acute, lower dcv concave.

22b (24). F v10 from cell.

22 (23). F v1 ends on termen; v5 nearer than usual to v6. No ♀ brand.

*Melanitis, Fab.* The Evening Browns. (Plate 14). (=*Hipio, Hub.: Cyllo, Bdv.*).

23 (22). F in ♂ v1 ends mid dorsum and v2 at tornus; ♀ normal.

*Cyllogenes, But.* The Evening Browns. (Plate 14).

24 (22b). Venation very abnormal. F v12 runs to beyond origin v8, v11 runs into 12, vs 9 and 10 run through 12. H v5 from upper end cell, scv straight from origin, giving off 6 and 7.

*Parantirrhœa, WM.* The Travancore Evening Brown.

25 (6b). H with prediscoidal cell at base 8, formed by a vein from scv to v8. Palpi with appressed hairs. F cell very short, upper apex acute, lower dcv concave. H v3 from end cell, lower dcv concave.

*Elymnias, Hub.* The Palmflies. (Plates 14-15). (=*Agrusia, Bruasa, Dyctis, Melynias, Mimadelias, M.*).

## KEYS TO SPECIES

**D1. Mandarinia.—The Mandarins. (Plate 11).**

Above dark brown with a blue discal band upf; below complete row submarginal ocelli. ♂ uph dark brand bases 5 and 6, entering cell and covered by a prominent tuft black hairs, springing from mid cell: polished area about mid v1 unf and dorsum F bowed.

**regalis, Leech.* (45-50). The Mandarin, Shan States. VR.

**D2. Mycalesis.—The Bushbrowns. (Plate 11).**

All the species have in the ♂ a more or less well developed brand on uph about origin v7 set in a nacreous area and covered by an erectile tuft of hairs ; this is correlated to a similar brand along vl, unf also set in a nacreous area. Many species have additional brands, etc., which are referred to in the key. Seasonal variation is marked by obsolescence of ocelli below.

1a (8a). ♂ upf an enlongated cavity along mid vl, covered by a hair pencil more or less well developed ; some of the veins swollen or distorted.

1 (2a). Below no straight discal line across wings, some ill-defined pale brown and lilacine markings. Above ♂ dark velvet brown, apex F prominently paler and a blind ocellus in 2 ; ♀ with a broad red discal band from ocellus to costa. ♀ upf yellow tuft below vl ; uph tuft white over small dark brand on large white area ; unf small dark brand on a broad white area : H vs normal.

*maianeas*. *Hew*. (24-30). The Bandless Bushbrown. Mergui. VR.

2*a* (1). Below a well defined discal band.

2b (7). ♂ above not blue glossed.

2 (3a). Above unmarked. Below outwardly paler lilacine in WSF, lilacine and yellow in DSF. ♂ uph brand white, tuft pale yellow ; unh no brand, upf brand and tuft black, prominent ; H v7 origin pushed back to before mid cell.

*adamsoni*, *Wat*. (45-50) Watson's Bushbrown. Manipur. N. Burma. R.

3a (2). Above not unmarked.

3b (5a). Upf pre-apical white band. Below as in No. 1.

3 (4). Uph in ♂ no large black discal patch.

α. Uph brand black, tuft pale yellow ; remaining brands, etc., as in No. 2, except there is a small black brand unf.

*anaxias anaxias*, *Hew*. (48-55). The Whitebar Bushbrown. S. India. NR.

β. Uph brand pale yellow.

**anaxias æmate*, *Fruh*. Sikkim.—Burma. NR. (=*miranda*, *Evans*).

γ. Upf prominent ocellus in 2.

*anaxias radza*, *M*. Andamans. R.

δ. Upf pre-apical band wider, inner edge nearly to cell.

*anaxias manii*, *Doh*. Nicobars. VR.

4 (3). ♂ uph prominent black patch between bases 5 and 7 ; H costa very arched, v6 pushed back as well as 7 and its basal half swollen ; remaining brands as before. Upf ocellus in 2 more or less apparent.

*anaxioides*, *Mar*. and *DeN*. (52-62). The Large Whitebar Bushbrown. Karens—S. Burma. R.

5a (3b). Upf no preapical white band, but always a prominent pupilled ocellus in 2 ; unf never an ocellus in 3. ♂ unf brand small, brown ; uph brand and tuft brown.

5 (6). H v3 from end cell. ♂ upf brand prominent.

α. Below discal line lilac. Upf usually an ocellus in 5. Uph no ocelli.

* *francisca sanatana*, *M*. (48-55). The Lilacine Bush-brown. Kulu—Burma. NR. (= *gopa*, *Fd.*: *gomia*, *Fr.*).

β. Below discal line white. Upf prominent ocellus in 5. Uph often ocelli in 2 and 3.

*francisca albofasciata*, *Tyt*. Manipur, above 6,000 feet. R.

6 (5). H v3 from before end cell. ♂ upf brand obsolete and tuft obscure ; H upper dcv swollen. Above paler, ocellus in 2 very large and always one in 5, none uph. Below pale brown, inwardly darker in DSF ; discal line white.

*gotama charaka*, *M*. (45-50). The Chinese Bushbrown. Assam—Burma. R. (= *oculata*, *M.*: *periboea*, *But.*).

7 (2b). ♂ above purple glossed, no pupilled ocelli ; ♀ pale brown, all ocelli show through and are obscurely pupilled ; below pale ochreous, discal lines dark brown. ♂ unh brand brown ; uph brand long brown, tuft dark brown : upf brand obsolete, tuft brown, obscure ; H origin v7 pushed back ; uph large black patch between bases 2-4 ; F dorsum bowed.

*orseis nautilus*, *But*. (48-52). The Purple Bushbrown. Nagas—Burma. VR.

8a (1a). Upf ♂ no brand and H veins normal.

8b (34). F origin v10 at or near end cell.

8c (22a 32). H. origin v3 at or just beyond end cell.

8 (9a). F dcv 4-5 nearly straight. ♂ above dark brown, ocelli show through unpupilled ; ♀ pale brown, all ocelli show through, with complete pupils and

**D2. Mycalesis.—The Bushbrowns. (Plate 11).—*contd.***

rings ; below ochreous with 2 prominent fulvous bands. ♂ unf no brand ; uph no brand, only a cavity, tuft white ; H v6 swollen at base.

* *fuscum, Fd.* (40-50). The Malayan Bushbrown. Dawnas—S. Burma. R.

9a (8). F. dcv 4-5 concave and angled.

9b (20a) Uph normally only an ocellus in 2, very rarely one in 5. Uph never more than an ocellus in 2.

9c (19). H vs 6 and 7 well separated at base ; lower dcv at an angle to v3. ♂ only normal brands and tuft uph pale yellow.

9d (11a. 17-18). Unf small brand placed centrally under origin v2.

9 (10). ♂ uph brand black ; unf black, very small. Uph ocellus not ringed ; unh ocellus in 3 shifted out of line ; unf WSF curved series ocelli in 2-5. F DSF termen straight or slightly concave.

α. Smaller. Upf usually unmarked in WSF.

*perseus typhlus, Fruh.* (38-50). The Common Bushbrown. Ceylon—Himalayas and Bengal. VC.

β. Upf always a pupilled ocellus in 2.

*perseus blasius, F.* (45-55). Kangra—Burma VC. (*cepheus, lurida, But.: samba, M.*).

10 (9). ♂ uph brand salmon pink or brown ; unf brand small, brown. Upf ocellus situated in a more or less pale area, outwardly and inwardly defined by a narrow dark line ; ocellus ring diffused into this area and never narrow, of uniform width or sharply defined.

α. WSF often very dark below and with small ocelli. DSF upf pale area often very extensive.

* *mineus polydecta, Cr.* (40-48) The Dark-brand Bushbrown. Ceylon—Bengal. VC. (=*drusia, M.*).

β. Larger.

*mineus mineus, L.* (45-50). Kulu—Burma. C. (= *justina, otrea, Cr.: sub-fasciata, M. : carpenteri, But.*).

γ. Darker and ocelli below larger.

*mineus nicobarica, M.* Nicobars C.

11a (9d. 17-18). Unf brand extends from under origin v2 to at least under origin v3 and often much further.

11b (13a). Unf WSF brand to beyond outer edge of discal band ; DSF to under origin v3 or 4, but, if not through discal band, the latter is bent outwards between v1 and 2 and sharply angled at v1.

11 (12). Uph brand brown or pale yellow ; unf DSF brand pale yellow or brown ; WSF inwardly brown and outwardly pale yellow. Upf pale area as in No. 9 ; unf discal band always angled at v1 in DSF and up to v1 in WSF, being outwardly curved before reaching it.

*igilia, Fruh.* (40-48). The Small Long-brand Bushbrown. Coorg, Mysore. NR.

12 (11). Uph brand pale brown ; unf pale brown to brown.

α. F DSF apex sharp pointed and termen straight ; WSF more rounded. WSF upf ocellus large, well defined.

*visala visala, M.* (45-55). The Long-brand Bushbrown. S. India, Pachmarhi. Kumaon—Assam. C. (= *indistans. M.*).

β. F apex more rounded.

*visala neovisala, Fruh.* Burma. R.

γ. F. apex rounded. Much darker.

*visala andamana, M.* Andamans. C.

13a (11b). Unf brand never through the discal band, though may be up to it ; discal band not angled at v1.

13 (14a). Uph brand black. Upf WSF ocellus with rather broad and prominent yellow ring ; unf discal band to costa ; apex F very rounded. DSF always more or less ocellated and with a wavy postdiscal line always more or less apparent.

*perseoides, M.* (45-50). The Burmese Bushbrown. Katha—S. Burma. C. (=*intermedia, M.*).

14a (13). Uph brand pale yellow.

14 (15a). Above prominent pale sub-marginal line followed by 2 dark lines ; inner half cilia pale, outer half dark. Upf ocellus with a narrow well defined, though often obscure, ring ; unf always an ocellus in 1. Below WSF very black.

**D2. Mycalesis.—The Bushbrowns. (Plate 11).—*contd.***

*subdita, M.* (43–50). The Tamil Bushbrown. Ceylon, Nilgiris, Madras Orissa. NR.

15a (14). Above pale sub-marginal line obscure as usual.

15 (16). F apex very rounded ; H termen very scalloped and almost caudate at v4 ; ♀ termen chequered. Below ♂ DSF always ocellated ; ♀ very variegated.

*mercea, Evans.* (40–48). The Pachmarhi Bushbrown. Pachmarhi. NR.

16 (15). F apex more pointed and termen even.

α. Occurs in 3 forms, WSF intermediate and DSF.

*khasia orcha, Evans.* (42–55). The Pale-brand Bushbrown. Palnis, Coorg, Nilgiris. C.

β. Occurs in 2 forms only, WSF and DSF.

*khasia khasia, Evans.* Assam—Burma. C.

17 (9d. 10a. 18). Uph and unf brand silvery white, hard to see on the nacreous area. Above dark ferruginous, ocellus upf fulvous ringed and usually an ocellus in 5 and in 2 uph ; below ochreous brown with broad yellow discal band.

*rama, M.* (48–58). The Cingalese Bushbrown. Ceylon. R.

18 (9d. 11a. 17). Unf no brand ; uph brand dark brown, tuft reduced. Below pale brown, discal band pale yellow. Wings very rounded.

*evansii, Tyt.* (40–50). Tytler's Bushbrown. Assam, Manipur. R.

19 (9c). H vs 6 and 7 approximate at origin, lower dcv in line with v3. Below DSF dull ochreous, always more or less ocellated. ♂ unf no brand ; uph no brand in usual place, but tuft present, white ; uph white brand below origin v6, covered by recumbent tuft black hairs rising beyond mid cell ; H v1 swollen and covered by recumbent tuft black hairs.

*mystes, DeN.* (45-50). The Many-tufted Bushbrown. Manipur—Karens. R.

20a (9b). Uph normally 3 ocelli, may be 2 or 4. Above very dark ferruginous brown. ♂ uph brand black, tuft brown. F vs 5 and 6 well separated at origin.

20 (21). Upf large ocellus in 2 and all ocelli above prominently fulvous ringed, except ocellus in 5 upf. Unf no brand and tuft uph very inconspicuous.

*adolphei, Guer.* (50-55). The Red-eye Bush Brown. Coorg, Nilgiris. NR.

21 (20). Upf large ocellus in 2 on a wide fulvous area, ocellus in 5 minute or absent ; uph ocelli fulvous ringed or on a fulvous area. H termen caudate at v4. Unf small black brand.

**oculus, Mar.* (45-60). The Red-disc Bush brown. Travancore, Palnis. C.

22a (8c. 32). H origin v3 before end cell.

22b (28a. 31). Pupilled ocelli present in 2 and 5 upf, latter rarely absent, and in 2 uph.

22 (23a). Below dark discal line ; apex F produced. Above ochreous brown, ocellus in 2 upf enormous, with broad yellow ring. Below pale. Unf no brand but prominent square white patch in nacreous area : uph brand golden brown, tuft bright yellow.

**mnasicles perna, Fruh.* (60-70). The Cyclops Bushbrown. Shan States. S. Burma. R.

23a (22). Below pale yellowish discal line.

23 (24a). Below ground colour uniform, not mottled. Cilia white. Above prominent ocelli in 2 and 5 upf and 2 upf. Unh brand small, pale yellow ; uph brand pale yellow, tuft pale brown; uphlong erect dense hairs along basal part v1.

*suavolens, WM. and DeN.* (60-70). Wood Mason's Bushbrown. Sikkim—N. Burma. R.

24a (23). Below basal area mottled.

24 (25a). Cilia white. Above ocelli small ; those in 2 F and H equal and that in 5 H minute or absent. Unh in addition to ocellus in 2 there are 2 apical ocelli ; unh ocellus in 3 absent. Unf brand minute, black ; uph brand small black, tuft brown

α. Upf white discal band obscure.

*mestra vetus, Fr.* (60–70). The White-edged Bushbrown. Sikkim—Bhutan. R.

β. Upf white discal band prominent.

**mestra mestra, Hew.* Assam. R.

25a (24). Cilia pale brown, Above ocelli larger ; those in 5 F and 2 H equal, that in 2 F much larger. Below ocelli complete and those on F in line.

**D2. Mycalesis.—The Bushbrowns. (Plate 11).—*contd.***

25 (26a). Uph in addition to ocellus in 2 always one in 3, usually in 2 and more rarely in 1. Upf ocellus in 2 enormous. Unf no brand ; uph brand black and tuft brown.

*heri, H.* (60-70). Moore's Bushbrown. Kumaon—Bhutan. R.

26a (25). Uph rarely more than the ocellus in 2 ; if so very small.

26 (27). Below outer area before discal line nearly black, mottling confined to base. Unf brand small, salmon ; uph brand salmon, tuft yellow brown.

*misenus, DeN.* (60-65). DeNicéville's Bushbrown. Sikkim—Assam. R.

27 (26). Below brown and mottled up to discal line. Upf ocellus in 2 much larger than rest. Brands and tuft black.

*nicotia Db. and Hew.* (55-60). The Bright-eye Bushbrown. Mussoorie—Karens. NR. (= *langii, DeN, : nudgara, Fr.*).

28a (22b. 31). Above ocelli blind. Below mottled ; pale yellow or white discal line. Brands black and tuft brown.

28 (29a). Above white discal line clearly defined.

*malsara, M.* (40-50). The White-line Bushbrown. Sikkim—Rangoon. C. ( =*rudis, M.*).

29a (28). Above white discal line not visible.

29 (30). Upf nearly always sub equal ocelli in 3 and 5 as well as the usual one in 2 ; rarely ocellus in 1. Uph always an ocellus in 2 and 3, even when the ocelli upf are reduced to one in 2. Cilia brown.

α. Wings rounded.

*mamerta mamerta, Cr.* (45-50). The Blind-eye Bushbrown. Assam—Shan States. NR. (=*watsoni, Evans.*),

β. Wings elongated. Termen H very scalloped.

*mamerta annamitica, Fruh.* Karens—S. Burma, R.

30 (29). Upf normally no ocellus in 3, if present smaller than ocellus in 5. Uph there may be ocelli in 2 and 3, but always absent, if ocellus in 5 upf is absent.

α. Cilia white, prominently chequered at ends veins.

*lepcha davisonii, M.* (45-50). The Lepcha Bushbrown. Palnis, Animalais. NR.

β. Cilia brown. Below discal line wide, outwardly ill-defined.

*lepcha bethami, M.* Pachmarhi, Orissa. R.

γ. Cilia brown. Below discal line narrow, threadlike and obsolete towards costa unf.

*lepcha lepcha, M.* Kulu—Kumaon. NR.

δ. Cilia white, not chequered. Very dark above and below.

*lepcha kohimensis, Tyt.* Assam—Karens. NR.

31 (22b. 28a). Above unmarked, prominent double ante-terminal line. Below uniform, discal line lilacine ; unh ocelli in 2 and 3 larger than rest. Wings very rounded. Unf brand absent or minute, dark ; uph brand black, tuft brown, inconspicuous ; H bases vs 2, 3 and 4 slightly swollen and covered with scattered erect hairs.

*malsarida, But.* (45-50). The Plain Bushbrown. Assam. R. (=*khasiana, M.*),

32 (8c, 22a). H origin v3 far beyond end cell. Unf no brand ; uph brand black, tuft pale brown. Above dark brown, ocellus in 2 upf set obliquely at lower edge of pale area, minute ocellus in 5 usually present; these ocelli pupilled uph no ocelli. Below not mottled.

α. Upf pale area fulvous and fulvous patch in cell. Below fulvous.

*patnia patnia, M.* (40-45). The Gladeye Bushbrown. Ceylon. C.

β. Upf pale area white. Below rather pale brown.

**patnia junonia, But.* S. India. NR.

33 (8b). F origin v10 well beyond end cell. ♂ unf small dark brand : uph brand pale yellow, tuft pale yellow ; uph small dark brand above origin v6 ; H v1 distorted towards v2 resulting in a fold in the wing, over which there is a recumbent tuft of brown hairs. Above brick red ; upf blind ocellus in 2 ; below very dark, not mottled.

*orvatis surkha, Mar.* (50-55). The Red Bushbrown. Dawnas—S. Burma VR.

**D3. Lethe.—The Treebrowns. (Plates 11 & 12.)**

1a (47a). Unh never with an ocellus in 7. H v8 about ½ length v7.

1 (2a). Unh only a single apical and 2 tornal ocelli ; unf a single apical ocellus and cell unmarked. Above fulvous. F upper apex cell acute, dcv evenly concave ;v10 ends after origin v8. H v3 from end cell. No ♂ brand.

**D3. Lethe.—The Treebrowns. (Plates 11 & 12).—*contd.***

**gemina gafuri*, *Tyt.* (60–70). Tytler's Treebrown. Nagas. VR

2a (1). Unh complete row 6 ocelli.

2b (5a). Unh central 4 ocelli in a straight line, inwardly lying against abroad white band. F upper apex cell slightly acute; dcv concave and angled below v5. F end v10 beyond origin v8. ♂ uph dark brand in 7 from base v8 to origin v7, entering 6 and cell.

2 (3a). Unf pale bar end cell. Unh v1 pale and a pale basal marking from costa across cell.

α. Unf discal ocelli obsolete or obscure. Smaller and paler.

*baladeva aisa*, *Fruh.* (55–65). The Treble Silverstripe. Kumaon. R.

β. Unf discal ocelli prominent. Larger and darker.

*baladeva baladeva* *M.* (67–70). Sikkim. NR.

3a (2). These markings absent.

3 (4). Below dark brown. Unf discal ocelli and pale line beyond prominent.

**ramadeva*, *DeN.* (60–70). The Single Silverstripe. Sikkim. VR.

4 (3). Below ochreous. Unf discal ocelli and pale line beyond obsolete or nearly so.

*andersoni*, *Atk.* (60–70). Anderson's Silverstripe. Bhamo. VR.

5a (2b). Unh ocelli more or less on an arc and not inwardly bordered by a white band.

5b (23a). Unh markings in cell consist of more than one band.

5c (20a). H origin v3 before end cell.

5d (16a). H not excavated at tornus beyond v2, termen faintly caudate at v4 or more usually rounded.

5e (14a). Unh basal area marked with narrow waved lilacine or white lines. No ♂ brand.

5 (6a). Uph dark spots outwardly white bordered. ♀ mostly white.

*visrava*, *M.* (50–55). The White-edged Woodbrown. Sikkim—Bhutan. R. (= *deliades*, *Hew.*).

6a (5). Uph no white.

6 (7a). Unh ocelli in 1–4 in a straight line pointing to below end v6; discal band much bowed out in middle. ♂ unf no traces of discal band; ♀ the faint discal band highly convex and ends half way along v2.

*siderea*, *Mar.* (48–55). The Scarce Woodbrown. Garhwal—N. Burma. R.

7a (6). Unh ocelli in 1–4 on a curve pointing to above end v6. Unf always traces of a discal band.

7 (8a). Unh apical ocellus always conspicuously larger than ocelli in 3–5. Unf markings white or silvery lilac.

α. Uph no black spots; unf white markings reduced.

*sidonis vaivarta*, *Doh.* (45–50). The Common Woodbrown. Kulu—Bhutan. NR.

β. Uph black spots always traceable.

*sidonis sidonis*, *Hew.* (45–60). Kumaon—N. Burma. C. (= *gelduba*, *Fr.*).

8a (7). Unh ocelli subequal. Unf discal band, if present, yellowish. Above bronzy.

8 (9a). Unh yellow rings of all ocelli absent. Unf prominent pale bar in cell and discal band.

*maitrya*, *DeN.* (45–55). The Barred Woodbrown. Simla—Sikkim. R.

9a (8). Unh yellow rings of at least apical and 2 tornal ocelli present.

9a (11a). Unh 4 apical ocelli in a straight line. Unf prominent pale discal band and bar in cell.

9 (10). Uph prominent black spots.

*nicévillei*, *Evans.* (50–55). The Straight-eyed Woodbrown. Garhwal. Bhutan. R.

10 (9). As last, but uph no black spots. Unf whitish band costa to tornus. Unh ocelli small, those in 3–5 blurred and prominent ferruginous discal band.

*irma*, *Evans.* (55). Bailey's Woodbrown. Gangtok, Sikkim. VR.

11a (9a). Unh 4 apical ocelli on a curve. Unf no pale bar in cell.

11 (12a). Unh ocellus in 3 or in 3 and 4 blurred. Unf only traces of a discal band and apical spots. Uph complete series dark spots. H evenly rounded.

*nicetella*, *DeN.* (45–50). The Small Woodbrown. Sikkim. R.

12a (11). Unh all ocelli clear. Uph ocellus in 2 usually absent. H angled or faintly caudate at v4.

12 (13). Unh discal silver line highly dislocated, in 2 drawn up to base and

**D3. Lethe.—The Treebrowns. (Plates 11 & 12).—*contd.***

highly zigzagged in 1. ♂ unf only traces of discal band; ♂ ♀ discal band at an angle of 45 to costa. Unh in ♀ area between discal band and ocelli yellow.

*kanjupkhula, Tyt.* (50–60). The Manipur Woodbrown. Manipur. R.

13 (12). Unh discal silver line more regular, crosses 2 at origin v3 and only waved in 1; ♂ ♀ area beyond discal band yellow. Unf discal band at right angles to costa.

*nicetas, Hew.* (48–55). The Yellow Woodbrown. Kulu—Manipur. NR.

14a (5e). Unh no pale markings; ferruginous bands on a rather pale ochreous brown ground, basal markings in cell very obscure, but traceable. ♂ upf broken brand from mid v1 to base v4.

14 (15). Unf pre-apical white spots from 3 or 4 to costa, appearing on upf in ♀.

*tristigmata, El.* (55–60). The Spotted Mystic. Sikkim. R.

15 (14). Unf preapical white spots, from 6 to costa.

*ocellata lyncus, DeN.* (55–60). The Dismal Mystic. Sikkim. Manipur. VR.

16a (5d). H sharply excavated at tornus beyond v2 and strongly caudate at v4. Unh with an inverted Y-shaped dark band from costa to lower end cell, beyond which is a straight broad white or yellow band. ♂ brand upf usually obscure or obsolete.

16 (17–19). Unh area behind dark band end cell ferruginous, bearing a single narrow irregular line from costa through mid cell. ♂ upf prominent broad brand.

*kabrua, Tyt.* (55–60). The Manipur Goldenfork. Manipur. R.

17 (16, 18, 19). Unh area behind dark line end cell dark brown, bearing 2 narrow irregular lines from costa across cell.

α. Unf 2 apical ocelli. Markings narrower and darker.

*jalaurida jalaurida, DeN.* (50–55). The Small Silverfork. Kulu—Kumaon. R.

β. Unf 1 apical ocellus. H more produced at tornus; discal line straighter at lower end.

* *jalaurida elwesi, M.* (50–55). Sikkim. NR.

18 (16, 17, 19). Unh area behind dark band end cell brown, bearing a straight pale broad band from costa across cell and a very obscure basal band. Unf no apical ocelli.

*mœlleri, El.* (50–55). Mœller's Silverfork. Sikkim. NR.

19 (16–18). Unh area on either side dark band end cell yellow, base ferruginous brown. Above with fulvous markings.

*atkinsonia, Hew.* (48–55). The Small Goldenfork. Sikkim—Bhutan. R.

20a (5c). H origin v3 from end cell; caudate at v4 and excavate beyond v2. Unh an inverted Y-shaped dark band at end cell as in last group and a pale broad dark bar near base. ♂ upf broad brand from mid v1 to base v4.

20 (21a). Unh dark discal band does not widen towards costa. Pale areas below yellow.

α. Unh outer edge dark discal band regular.

*goalpara narkanda, Fruh.* (65–75). The Large Goldenfork. Simla. R.

β. Unh outer edge dark discal band very irregular.

*goalpara goalpara, M.* (65–80). Sikkim—Assam. NR.

21a (20). Unh dark discal band widens towards costa. Unh pale areas lilacine, becoming more or less yellow in ♀.

21 (22). Unh inner edge discal band straight between vs 6–4. ♂ upf uniform dark brown.

* *sura, Db. and Hew.* (65–85). The Lilacfork. Sikkim—N. Burma. C.

22 (21). Unh inner edge discal band angled between vs 6-4. ♂ upf outwardly paler; uph outwardly greyish and upper dark spots usually absent.

α. Pale outer area broad.

*dura gammiei, M.* (70–85). The Scarce Lilacfork. Sikkim—Bhutan. VR.

β. Darker. Pale outer area narrow. Uph spots very small.

*dura dura, Mar.* (70–85). Karen Hills, Dawnas. VR.

23a (5b). Unh single band across mid cell. F upper apex cell right angled and upper dcv more or less angled.

23b (28a). F cilia chequered, dark at ends veins and whitish between.

♀ always with white band. H v3 from end cell; caudate. Unh ocelli more or less disintegrated.

**D3. Lethe—Treebrowns. (Plates 11 & 12.)—*contd.***

23c (27). ♂ upf no white band and no brand.

23 (24a). Unh no discal band, all ocelli very large and much disintegrated. Unf single pale band across cell.

α. Uph black spots prominent. Below very dark.

*europa ragalva, Fruh.* (65–75). The Bamboo Treebrown. S. India. NR.

β. Below paler. Very similar.

**europa niladana, Fruh.* (65–75). Dun—Burma. C.

γ. Larger, very dark. Unf ♀ white discal band straighter at costa.

*europa nudgara, Fruh.* (70–80). Andamans. NR.

δ. ♀ above band yellow.

*europa tamuna, DeN.* (70). Nicobars. VR.

24a (23). Unh with discal band. Unf broad dark inner bar in cell continued into 1 and there is a narrow irregular outer one separated by a pale area.

24b (26). Unh ocelli in 3, 4 and sometimes 5 elongated and distorted.

24 (25). Unh apical ocellus conspicuously larger than ocellus in 2.

α. ♂ upf whitish outer spot in 2 : ♀ white band in 3 well separated spots.

**rohria nilgiriensis, Guer.* (58–65). The Common Treebrown. Ceylon. S. India, Pachmarhi. C.

β. ♂ upf no pale spot in 2 and ♀ with white band continuous.

*rohria dyrta, Fd.* Kashmir—Kumaon. C.

γ. As last, but larger and darker usually. Uph black spots larger. Unf discal band more irregular on inner edge and continued to v1 in ♀.

*rohria rohria, F.* (60–70). Sikkim—Burma. C.

25 (24). Unh apical ocellus not larger than rest. ♂ upf no white spots.

α. ♀ upf band broad and irregular, spot in 3 shifted in, so that its outer edge is in line with spot in 2. ♂ uph small spots in 3, 4 and 5.

*drypetis drypetis, Hew.* (65–70). The Tamil Treebrown. Ceylon. NR. (=*embolina, But.*)

β. ♀ upf band narrow and regular, spot in 2 long and narrow, no spot in 1. ♂ uph spot in 5 large and prominent.

*drypetis todara M.* S. India—Orissa. NR.

26 (24b). Unh ocelli in 3–5 rounded, only slightly disintegrated.

*daretis, Hew.* (50–60). The Ceylon Treebrown. Ceylon. NR.

27 (23c). ♂ ♀ with white band upf. Unh ocelli rounded and hardly disintegrated. Unf single pale line in cell, continued to v1. ♂ uph a dark brand base 6, extending into cell, 7 and 5.

α. Smaller, paler, markings smaller. Unf usually only 2 apical ocelli.

*confusa confusa, Aur.* (50–55). The Banded Treebrown. Murree—Sikkim. C. (=*rohria, Auct*).

β. Unf nearly always 3 apical ocelli.

*confusa gambara, Fruh.* (52–65). Assam—Burma.C. (= *apara, Fr.*).

28a (23b). F cilia uniform.

28 (29a). ♂ ♀ with broad even white band ending above v1 on termen, no white apical spots or ocelli. Unh ocelli practically perfect. Unf single obscure pale bar in cell. H. v3 from end cell ; faintly caudate. ♂ brand as in last.

α. Upf band narrow. Uph only an ocellus in 2.

*verma verma, Koll.* (55–60). The Straight-banded Treebrown. Kashmir—Kumaon. C.

β. Band wider. WSF larger. Uph always an ocellus in 2 and 3.

*verma sintica, Fruh.* Sikkim—N. Burma. C.

γ. Smaller and band narrow, rather yellowish. Unh ocelli small.

* *verma stenopa, Fruh.* (50–55). Shan States—S. Burma C.

29a (28). ♂ upf never with a white band.

29b (30a). Unf no or very faint marking in cell (except ♀ of No. 29). Upf ocelli and sub-marginal dark line apparent ; uph complete series spots. Unh ocelli perfect ; apical very large and shifted in. H v3 from end cell. No male brand.

29 (30). ♂ above no band or white spots ; ♀ very broad white band. H rounded, costa and termen highly convex.

*naga Doh.* (70–80). The Naga Treebrown. Manipur, Nagas — S. Shan States. R.

30 (29). ♂ upf narrow yellow band ; ♀ white band. Unh no discal band ; single pale band through end cell.

*margaritæ, El.* (85–95). The Bhutan Treebrown. Bhutan. VR.

**D3. Lethe.—Treebrowns. (Plates 11 & 12).—*contd.***

31a (29b). Unf always prominent mark in cell.

31b (39a). Unf 2 (3 in No. 32) dark markings in cell, of which the inner, if any, is continued into 1 or there may be a dark marking in 1 between the 2 cell markings.

31c (35a). H v3 from end cell; caudate.

31d (34). Unh tornal ocellus bipupilled as usual.

31e (33). Unf outer dark line in cell straight; inner line broad but single. Unh all ocelli perfect. No ♂ brand.

31 (32). ♂ unf discal line curved in at upper end and broadly pale there. ♀ broad white discal band.

*α*. ♀ upf discal band of even width and curved down at tornus.

*insana insana, Koll.* (55-60). The Common Forester. Chamba—Kumaon. R. (=*hyrania Koll.*).

*β*. Below washed metallic violet. ♀ upf band narrower and straighter.

* *insana dinarbas, Hew.* Kumaon—Assam. NR.

32 (31). ♂ unf discal line straight and outwardly evenly and narrowly pale throughout. ♀ a very narrow whitish discal band unf, appearing as a narrow pale brown band above.

*brisanda, DeN.* (55-60). The Dark Forester. Bhutan—Assam. R.

33 (31e). Unf outer dark mark in cell concave and well separated from inner mark, which is double. ♀ above no pale band, but dark band from below shows through and area beyond is paler, 2 pale apical dots. ♂ upf large triangular brand from mid dorsum to vs 4 and 5. Unh pupils of ocelli 3-5 dimmed but not disintegrated.

*α*. Unh basal band straight.

*serbonis serbonis, Hew.* (60-70). The Brown Forester. Sikkim. R.

*β*. Unh basal band broken in at v6.

*serbonis naganum, Tyt.* (70-75). Manipur, Nagas—Ruby Mines. NR.

34 (31d). Unh tornal ocellus single, ocelli in 3-5 slightly disintegrated. ♂ below very dark, washed violet; ♀ paler and outwardly yellowish. ♀ upf white band with detached spot in 1; uph with pale yellow area across the black spots. ♂ upf long brand in outer part of 1, showing as a raised patch below and crossed by a recumbent tuft of black hairs.

*dynsate, Hew.* (55-60). The Ceylon Forester; Ceylon. VR. (= *sihala, Hew.*).

34b (31c). H v3, from before end cell somewhat caudate. ♂ uph prominent brand along basal ½ v3 covered by recumbent tuft black hairs. Unh all ocelli perfect. Unf discal band ends on dorsum well before tornus.

35 (36a). Unf area between dark bars in cell pale, inner bar broad. ♂ above outwardly blue shading to purple. ♀ dark brown; unf narrow yellow band just showing above. ♂ upf dark brand about middle vl.

**scanda, M.* (58-65). The Blue Forester. Sikkim—Assam. R. (= *dirphia Druce: nada, M.*).

36 (37a). Unf discal dark line crosses v2 much nearer its end than its origin; unh basal band straight. ♂ upf unmarked; ♀ unf narrow white band, which shows above as a prominent pale brown band as well as 2 yellowish apical dots. ♂ upf brands along each vein from 1-6 decreasing in width.

*latiaris, Hew.* (55-65). The Pale Forester. Sikkim—Karens. R. (= *perimele, Fr.*).

37a (36). Unf discal dark line crosses v2 beyond its middle.

37 (38). Unh basal dark line very irregular, broken at mv and v7. ♂ upf unmarked; ♀ with 3 yellow outer spots in 3, 4 and 7 and discal in 2 and 3. ♂ uph brand in basal ¼ of 5 and 6; upf brand along middle of vl and dorsum bowed.

*α*. Unf cell bars posteriorly convergent.

*gulnihal gulnihal, DeN.* (58-64). The Dull Forester. Bhutan—N. Burma. VR. (= *issa, Fr.*).

*β*. Unh cell bars parallel. Much darker and ♂ below more ochreous. ♀ spots above more obscure.

*gulnihal peguana, M.* Karen Hills—Dawnas. R.

38 (37). Unh basal dark line regular. ♂ upf marked as ♀ of last, discal spots often absent. ♀ with a row of small discal white spots from 1-6 and uph spots ringed dark orange. ♂ uph brand in basal ¼ of 4-6; upf brand along vl, dorsum not bowed.

*bhairava, M.* (65-75). Sikkim—Assam. Ruby Mines. NR.

**D3. Lethe.—Treebrowns. (Plates 11 & 12)—*contd.***

39a (31b). Unh 2 dark marks in cell of which outer is continued to v1, inner one sometimes absent (No. 40 aberrant). H v3 from end cell.

39b (44a). Unh ocelli mostly disintegrated. H more or less caudate.

39c (43). Upf ♂ unmarked ; ♀ with a prominent white band with lower 2 or 3 spots detached and 1 or 2 apical spots.

39 (40a). uph apical ocellus disintegrated. ♂ uph outwardly red ; ♀ bright brick red ♀ upf always white spot in 1 and very faint discal line. Unh basal dark line straight. ♂ uph brand towards base 2 covered by tuft hairs ; uph brand from dorsum to v3.

**minerva tritogeneia, Fruh.* (63–70). The Branded Red Forester. Chin Hills—S. Burma. NR.

40a (39). Unh apical ocellus perfect or very nearly so. ♂ uph no brand. ♀ upf very rarely spot in 1.

40 (41a). Unh basal dark line straight, unbroken. ♂ upf obscure brand dorsum to v4. ♀ uph outer area more or less red. ♀ rather dusky red, discal line prominent upf.

*α*. ♂ uph outer area paler. ♀ lighter. Below much paler.

*mekara mekara, M.* (65–75). The Common Red Forester. Sikkim. C.

β. Darker especially in WSF.

**mekara zuchara, Fruh.* Assam—Burma. C. (= *vajra, Fr.*).

41a (40). Unh basal line irregular and more or less broken.

41 (42). Unh discal dark line much bent out in middle, in 2–4 separated from the ocelli by only the width of the latter. ♂ uph red marginal area obscure or absent. ♀ dusky red above. ♂ brand as in No. 39.

*α*. ♂ above outwardly paler. ♀ paler both sides.

*chandica chandica, M.* (65–75). The Angled Red Forester. Sikkim. C. (= *namura, Fr.*).

β. Much darker.

**chandica flanona, Fruh.* Assam—Burma. NR.

42 (41). Unh discal dark line not so much bent out in middle, in 2–4 far from ocelli. ♂ brand obsolete. ♂ uph outer area bright red with prominent black spots ; ♀ mostly bright red. Below F margin and H tornal area yellow.

*distans, But.* (70–80). The Scarce Red Forester. Sikkim—Karens. VR.

43 (39c). ♂ upf unmarked ; uph outer area pale brown with black spots. Unh basal area uniform pale brown, outer area about ocelli whitish ; basal line straight, discal line as in No. 40. ♀ unknown.

*satyvati, DeN.* (65–75). The Pallid Forester. Assam. VR.

44a (39b). Unh ocelli perfect ; strongly caudate. Below dark lines very straight. ♂ obscure or nearly obsolete brand upf, from dorsum to 4 or 5.

44 (45a). Below area beyond discal line prominently paler and outer edge basal dark line prominently edged whitish. Upf discal line showing (whitish in ♀) and beyond paler. Uph black spots prominent and ringed fulvous.

*vindhya, Fd.* (65–70). The Black Forester. Sikkim—Burma. NR. (= *dolopes, Hew : alberta, But : ladesta, Fr.*).

45a (44). Below uniform. Upf with small pale spots in 3, 4 and 6 and in ♀ spots beyond cell ; discal line from below faintly showing in ♂, prominent in ♀.

45 (46). Uph spot in 4 and unh ocellus in 4 on even curve with rest. Uph spots yellow ringed.

**kansa, M.* (65–75). The Bamboo Forester. Kumaon—Burma. C. (= *vaga, zeugitana, Fr.*).

46 (45). Uph spot in 4 absent and unh ocellus in 4 out of line with rest, nearer margin. Uph ocelli placed on a red area in ♂ and on an orange area in ♀, where basal area F and H is dark dusky red, apical and terminal area F dark brown.

**sinorix, Hew.* (70–78). The Tailed Red Forester. Sikkim—Dawnas, R.

47a (1a). Unh with an ocellus in 7. Cilia chequered. ♂ brand upf mid dorsum to 4, obscure or prominent.

47b (51a). Upf and unf a number of large yellow or whitish spots, always 2 spots in 3.

47c (49a). Always 2 pale spots in 2 upf ; v1, mv and bases vs 2 and 3 yellow.

47 (48). Upf spot beyond cell in 5 rarely present and, if so, in line with spot in 4, not well behind it. Unf costal bar beyond cell oblique.

**D3. Lethe.—Treebrowns. (Plates 11 & 12.)—*contd.***

α. Smaller, darker and markings smaller. Upf pale bar before end cell not continued across at full width.

**pulaha pulaha*, *M.* (60–70). The Veined Labyrinth. Chamba—Sikkim. NR.

β. Larger and paler. Upf pale bar before end cell continued across cell at full width.

**pulaha pulahoides*, *M.* Assam—Karens. R.

48 (47). Upf beyond cell a spot in 5 in continuation of the 2 costal spots and unf pale costal bar continued to v4 at right angles to the costa ; pale markings in inner two-thirds of cell nearly obsolete. Unh darker, basal markings very obscure, ocelli larger. Above darker and spots deeper yellow. F apex less produced. H costa and v8 straight, not convex.

*pulahina*, *Evans.* (60–70). The Scarce Labyrinth. Sikkim—Manipur. R.

49a (47c). Upf and unf only one pale spot in 2 ; no veins yellow.

49 (50). Unh no ocellus in 1a. Upf pale bars in cell obscure. Unf central pale bar in cell highly angled and behind it a similar angled bar. DSF uph outwardly yellow ; WSF brown except for yellow ocelli rings.

*armandii*, *Ob.* (75–85). The Chinese Labyrinth. Assam. R. (=*khasiana*, *M*).

50 (49). Unh with an ocellus in 1a. Upf 2 pale bars in cell prominent. Unf central pale bar in cell oblique but straight, behind it only a pale detached bar against upper edge cell.

**bhadra*, *M.* (80–100). The Tailed Labyrinth. Sikkim—Karens. NR.

51a (47b). Upf no pale spots or markings, except ocelli rings.

51 (52). Below discal band prominently pale edged ; ocelli F large and prominently pupilled, discal band outwardly curved at lower end. ♀ with black spots F very prominent and edged dull yellow outwardly.

**muirheadi bhima*, *Mar.* (70–80). The Black-spotted Labyrinth. N. Burma —Ataran. R.

52 (51). Below discal band very obscurely white edged. Ocelli F small and rather obscure, ocellus in 2 not larger than rest, discal band straight. ♀ rather as last, but black spots not so prominent.

α. Smaller and much paler.

*yama yama*, *M.* (70–85). The Dusky Labyrinth. Kulu—Sikkim, R.

β. Larger, darker, and markings below much richer.

**yama yamoides*, *M.* (75–95). Assam—Dawnas. R.

**D4. Pararge.—The Walls. (Plate 12).**

1a (4a). Upf prominent pupilled ocellus. F upper apex cell highly acute ; mv much swollen. H v3 from after end cell. Above dark brown, usually with a fulvous area upf. Antennæ club spatulate.

1 (2a). Unh discal line not broken in at v4. ♂ upf broad black brand from mid dorsum to base v4.

*menava*, *M.* (50–60). The Dark Wall. Baluchistan—Chitral—Kashmir. C. (=*maeroides*, *Fd.*).

2a (1). Unh discal line broken in at v4.

2 (3). Unh discal line evenly curved from costa to v5. ♂ upf narrow black brand as in last.

**schakra*, *Koll.* (55–60). The Common Wall. Kurram. Chitral—Kumaon. C.

3 (2). Unh discal line broken in between vs 6 and 7. No ♂ brand.

*mœrula*, *Fd.* (55-60). The Scarce Wall. Chitral—Kumaon. R. (=*laurion*, *DeN.*).

4a (1a). Upf no pupilled ocelli. No ♂ brand. F upper apex cell right angled. H v3 from end cell. Antennæ club gradual.

4b (6a). Above veins concolorous with ground. Unf single pre-apical ocellus in 5.

4 (5). Above yellow ; unf 2 dark lines in cell. F mv much swollen.

**eversmanni cashmirensis*, *M.* (55–60). The Yellow Wall. Chitral—Kashmir R.

5 (4). Above dark brown with broad white band F and 2 apical dots ; costa H white. Unf cell unmarked. F mv hardly swollen.

**masoni*, *El.* (60–65). The Chumbi Wall. Sikkim—Bhutan. NR.

6a (4b). Above veins black. Unf pupilled ocelli in 2 and 5 and 2 transverse bars in cell. Above tawny with black marking. F mv not swollen.

**D4. Pararge—The Walls. (Plate 12).—*contd.***

6 (7). Unh 2 dark lines in cell.
*moorei, But.* (55–60). The Small Tawny Wall. Simla—Sikkim. NR.
7 (6). Unh no dark lines in cell.
**satricus, Db.* (60–65). The Large Tawny Wall. Sikkim—Assam. NR.

**D5. Orinoma.—The Tigerbrown. (Plate 12).**

Above white with very broad dark brown veins and white spotted border. Upf basal half cell orange with 2 black spots.
**damaris, Gray.* (75–80). The Tigerbrown. Kangra—Karens. NR. (=*harmostus, Fr.*).

**D6. Cœnonympha.—The Heaths.**

Above and below very dark brown with a single pupilled ocellus upf. Very like a small Erebia.
*myops macmahoni, Swin.* (35–40). The Baluchi Heath. Baluchistan. VR.

**D7. Maniola.—The Meadowbrowns. (Plate 13).**

Upf the ocelli not pupilled or only rarely so in individuals.
1a (5a). H termen even, no ♂ brand, except in No. 3.
1b (4). Unh no prominent pale markings. Upf single apical ocellus; in ♀ rarely an ocellus in 2; ocelli not yellow ringed.
1 (2a). Upf bright tawny except for extreme base and margin. Unf discal line obsolete or nearly so, never shows above.
**pulchella, Fd.* (38–45). The Tawny Meadowbrown. Chitral—Kashmir. Lahoul, NR.
2a (1). Upf tawny area completely overlaid dark brown scales, less so in ♀. Unf discal line more or less prominent, especially in ♀, where it shows upf and beyond it there is a tawny area nearly clear of dark scales.
2 (3). Comparatively large, no ♂ brand.
*pulchra, Fd.* (40–45). The Dusky Meadowbrown. Kurram. Chitral—Kumaon. NR. (= *neoza, Lang.*).
3 (2). Small. ♂ brand upf under mv.
*hilaris, Stg.* (34–36). The Pamir Meadowbrown. N. Chitral. VR.
4 (1b). Unh with prominent fulvous markings from base 8 to mid cell and a discal series of irregular fulvous or pale yellow spots. ♂ upf ocellus very obscure; ♀ apical ocellus in 2 prominent and yellow ringed.
**cœnonympha, Fd.* (35–45). The Spotted Meadowbrown. Kashmir. NR. (=*goolmurga, maiza, Lang.*).
5a (1a). H margin crenulate. ♂ upf broad dark brand from v1 to v3 or 4. ♀ usually occellus in 2.
5b (7a). Unh no prominent ocelli, at most a very small one in 1.
5 (6). Above dark brown, only tawny beyond cell and about ocelli in female.
α. ♂ upf ocelli not yellow ringed. ♀ uph discal line prominent and much paler beyond it.
*lupinus centralis, Riley.* (45–50). The Branded Meadowbrown. Baluchistan. R. (=*interposita, Auct.*).
β. ♂ upf ocellus yellow ringed. ♀ uph uniform.
**lupinus kashmirica, M.* Chitral—Kashmir. NR.
γ. As last, but larger and fulvous ring round ocellus in ♂ and fulvous areas about ocelli in ♀ upf larger.
*lupinus cheena, M.* (50–60). Kashmir—Nepal. NR. (= *monoculus, Fr.*).
6 (5). Above tawny except for extreme base and border. Unf discal line obsolete. Unh paler and more striated, very irregular discal and sub-marginal line.
*narica, Hub.* (48–50). The Tawny Branded Meadowbrown. Baluchistan. R.
7a (5b). Unh prominent white ringed ocelli and prominent white edged discal line.
7 (8). Upf apical ocellus elongate.
*wagneri mandane, Koll.* (50–52). The Ovalspot Meadowbrown. Baluchistan. VR.
8 (7). Upf apical ocellus circular.
α. Large. ♂ upf brand wide and extending into 3, Unh ocelli small, ocelli in 1 and 5 very small or absent,

**D9. Karanasa.—The Satyrs. (Plate 13).—(*contd.*)**

*actæa pimpla, Fd.* (45–50). Chitral over 9,000 feet. Baltistan, Ladak. R.

3a (1a). Upf ocelli in 5 and 2 on a pale band (ocellus in 2 rarely absent).

3 (4). Upf veins across pale band brown in ♂ and in ♀ vs 1 and 4 brown. Pale band yellow, but often more or less suffused tawny. Outer edge of discal band uph defined by a sawtooth line. Apex F produced. ♂ brand prominent.

*regeli moorei, Evans.* (45–55). The Turkestan Satyr. Chitral—Ladak. NR. (= *leechi, M*).

4 (3). Upf veins across pale band concolorous with ground, except sometimes at upper end. Pale band tawny; outer edge discal band uph defined by an even or waved line. Apex F not produced. ♂ brand faint.

**hubneri, Fd.* The Tawny Satyr. Sated Koh. Chitral, Ladak, Kashmir N. (= *cadesia, modesta. M.*).

**Parcenelis.—The Mountain Satyrs. (Plate 13).**

Above brown with tawny band. Small. No ♂ brand.

1 (2). Upf tawny band ill-defined, diffused inwards, mostly tawny except for the dark border.

α. Above dark brown border narrow, confined to termen and ill-defined inwardly.

*pumilus pumilus, Fd.* (38–40). The Mountain Satyr. Kashmir, Ladak. NR.

β. Above dark brown border broad, up to edge of discal band.

**pumijus bicolor, Seitz.* (40–45). Chumbi Valley. NR.

2 (1). Upf tawny discal band narrow and well defined. Most of wing dark brown.

*palæarcticus sikkimensis, Stg.* (40–45). The Arctic Satyr. Sikkim. R.

**D11. Aulocera.—The Banded Satyrs. (Plate 13).**

Above black or very dark brown, discal band white or pale yellow. ♂ upf dark brand mid dorsum to v4 more or less prominent.

1a (4). Below dark, white striation less prominent than the dark ground. Tegumen with horns.

1 (2a). Upf inner edge white discal spots 1-4 in line. Uph band narrow and even. Wings rounded, termens convex. Tegumen gradually sloped to tip.

α. Unf apical ocellus well defined and prominently pupilled. Uph discal band to dorsum.

*brahminus brahminus, Blanch.* (55–65). The Narrow Banded Satyr. Kashmir —Mussoorie. NC. (= *scylla, But. : werang, Lang.*).

β. Unf apical ocellus ill-defined. Uph discal band to dorsum, comparatively straight. Large.

*brahminus dokwana, Evans.* (65–68). W. Garhwal, Kumaon, Nepal. R.

γ. As last, but much smaller and darker. Uph band much curved.

*brahminus brahminoides, M.* (50–60). Chumbi Valley. R.

2a (1). Upf inner edge discal spots 1-3 nearer base and not in line with spot in 4, but more in line with inner spot in 5, if present. Tegumen with shoulder. Wings produced, termen F straight.

2 (3). Uph band of even width throughout and veins crossing it black. Tegumen hooks short.

α. Uph inner spot in 5 absent in ♂. Uph band to dorsum in ♂, not always so in ♀. Unf ocellus prominently pupilled.

*padma padma, Kollar.* (70–85). The Great Satyr. Kurram. Kashmir—Sikkim. NR. (=*avatara, M.*).

β. Upf inner spot in 5 present in ♂ and ♀. Uph band to dorsum in ♂ and ♀. Unf ocellus often ill-defined.

*padma loha, Doh.* (80–92). Kumaon—Assam to 8,000 feet. NR.

γ. As last but much smaller and bands much narrower. Uph band curved and not as a rule to dorsum in ♂.

*padma chumbica, M.* (65–75). Bhutan, Chumbi Valley, over 9,000 feet. NR.

δ. As last, but bands pale yellow above and bright yellow below. Occurs as a variety with *chumbica*.

*padma fulva, Evans.* (70–75). Abor Valley and S.-E. Thibet, over 9,000 ft. R.

3 (2). Uph band distinctly narrowing to dorsum, which it never reaches

**D7. Maniola.—The Meadowbrowns. (Plate 13).**—(*contd.*)

* *devendra latistigma, M.* (52-55). The White-ringed Meadowbrown. Baluchistan. NR. (=*tenuistigma, M.*).

β. Small. ♂ brand narrower and not into 3. Unh ocelli variable, often an extra ocellus in 6. Unf discal line prominent.

*davendra chitralica, Evans.* (48-52). Khyber. Chitral NR.

γ. As last. Unh ocelli 2 and 5 large and equal; ocellus in 1 usually absent.

*davendra brevistigma, M.* Baltistan—Ladak. NR.

δ. Large and brand broad, but not into 3. Unusually an ocellus in 1. Unf discal line obscure

*davendra davendra, M.* (50-55). Spiti—Kumaon. R. (= *roxane, Fd.*).

**D8. Eumenis.—The Rockbrowns. (Plate 13).**

1 (2a). Above velvet black with white border, no discal band. Unh white edged discal line and prominent ocelli in 2 and 5. ♂ upf brand from v1-4.

α. Upf white marginal band unsullied. Uph ocellus in 2 small and mostly on the white area. Below paler, discal line straight.

*parisatis shiva, LeCerf.* (65-70). The White-edged Rockbrown. Baluchistan —Chitral and Hunza. NR.

β. Upf white margin narrow, sullied. Uph ocellus in 2 mostly on the dark area and large. Unh ocelli very large.

* *parisatis parsis, LeCerf.* Kashmir Kumaon. NR.

2a (1). Above with tawny or white band.

2b (4a). Unf broad dark bar in cell. Upf discal band consists of disconnected broad streaks, those in 2 and 5 being divided by an ocellus. Upf no ocellus in 1.

2 (3). Upf basal half of cell white; discal band white and always a streak in 4. Unf ocellus pupilled. ♂ upf broad brand.

*heydenreichi shandura, Mar.* (50-65). The Shandur Rockbrown. Chitral—Kashmir. R.

3 (2). Upf cell dark brown; discal band tawny in DSF and white in WSF, rarely streak in 4. Unf ocelli blind. ♂ brand narrow.

* *persephone enervata, Stg.* (60-70). The Dark Rockbrown. Baluchistan —Chitral. NR. (= *anthe, Ochs.: hanifa. Nord.*).

4a (2b). Unf dark bar in cell narrow or absent, apical ocellus pupilled. Upf tawny band prominent and continuous, veins more or less dark. Uph ocellus in 2 small or absent.

4. (5) Uph tawny discal band continued into 6 or to costa. ♂ upf dark basal area not projecting prominently into discal band at v4. ♂ upf dark band larger v1-4.

*mniszechii lehana, M.* (58-65). The Tawny Rockbrown. Baluchistan. Chitral—Ladak. NR.

β. As last but always smaller.

*mniszechii baldiva, M.* (50-55). Ladak, Kunawur, Spiti. NR.

5 (4). Upf tawny discal band not into 6. ♂ upf dark basal area projecting into discal band at v4. ♂ upf brand mid cell parallel to the scv.

* *thelephassa, Hub.* (55-65). The Baluchi Rockbrown. Baluchistan. NR. (Note. *semele diffusa, But.*, was described in error from India).

**D9. Karanasa.—The Satyrs. (Plate 13).**

1a (3a). Upf single ocellus in 5.

1 (2). Upf broad tawny discal band; ocellus not pupilled.

α. Apex F produced. Upf discal band broad and light, veins only narrowly black.

*digna pallas, Evans.* (55). The Chitrali Satyr. Chitral to 9,000 feet. NR.

β. Apex F not produced. Upf discal band narrower, duller, veins broadly black, especially v4; outer edge discal band much zigzagged. Smaller.

*digna digna, Mar.* (52). Chitral over 9,000 feet. NR.

2 (1). Upf no tawny discal band; ocellus pupilled.

α. Small. Apex F produced. Upf ocellus small.

*actæa nana, Stg.* (50-55). The Black Satyr. Baluchistan. R.

β. Much larger. Apex F produced. Upf ocellus very large.

**actæa magna, Evans* (60-65). Chitral to 9,000 feet. R.

γ. Small. Apex F rounded. Upf ocellus small.

**D11. Aulocera.—The Banded Satyrs. (Plate 12).**—(*contd.*)

except rarely in ♀; veins crossing it not darkened as a rule. Bronzy sheen above and below paler than last. Tegumen with very long hooks.

α. Uph band very narrow and not entering cell; upf spots of band well separated, only very faintly tinged yellow.

*swaha kurrama, Evans.* (60–65). The Common Satyr. Safed Koh. NR.

β. Uph band broad and enters cell; upf discal spots coalesced usually and larger. Above band pale straw, unf tinged pale yellow.

**swaha swaha, Koll.* (60–70). Chitral—Sikkim. C. (= *tellula, Fr.*).

γ. As last, but upf band bright yellow.

*swaha garuna, Fruh.* Kashmir—Kulu, inner ranges. NR.

4 (1a). Below very pale, white striation predominant; white band broad and straight on H, reaches dorsum. Tegumen without hooks.

*saraswati, Koll.* (65–75). The Striated Satyr. Chitral—Sikkim. C.

**D12. Arge.—The Marbled Whites. (Plate 13).**

Above white with irregular sub-marginal brown line and upf narrow irregular brown discal band and dorsum brown. Unh ocelli in 1-3 and 5 and 6, often obscure.

**halimede montana, Leech.* (60–65). The Chinese Marbled White. N. Burma. VR.

**D13. Erebia.—The Arguses (Plate 13).**

1a (4a). Antennæ club spatulate. Above velvet dark brown; upf ocellus single pupilled (sometimes unpupilled and very rarely 2). Unf maroon. Unh dark brown, powdered white scales, no ocelli, complete postdiscal row white spots. No ♂ brand.

1 (2a). Upf outer half wing yellow. Uph uniform dark velvet brown.

**mani, DeN.* (45–50). The Yellow Argus. Chitral—Ladak. R.

2a (1). Upf outer half not yellow. Uph obscure postdiscal ferruginous patch.

2 (3). Upf broad prominent postdiscal ferruginous area and apical ocellus prominently yellow ringed.

α. Upf ocellus not pupilled and upf no tawny patch.

*kalinda chitralica, Evans.* (45–50). The Scarce Mountain Argus. Chitral. VR.

β. Upf ocellus pupilled.

**kalinda, kalinda, M.* (45–50). Kashmir—Kumaon. R.

3 (2). Upf ferruginous area obscure and detached from ocellus, which has no yellow ring, except in ♀.

*shallada, Lang.* (45–55). The Mountain Argus. Chitral. Kashmir—Mussoorie. NR.

4a (1a). Club antennæ gradual.

4b (8a). Above velvet dark brown; upf ocellus bipupilled; uph an ocellus in 2. Unh at least an ocellus in 2.

4c (6a). Unh no sub-marginal brown fascia or line; discal brown line or fascia obscure or obsolete.

4 (5). Above uniform. No ♂ brand.

α. Unh finely irrorated; ocellus in 2 minute, no ocellus in 1, white spots 4, 5 and 6 obscure, also brown discal line traceable. Unf maroon.

*nirmala reducta, Evans* (50–55). The Common Argus. Chitral. VC.

β. Unf dark brown and unh no white irrorations, ocellus in 2 prominent, usually no ocellus in 1 and rarely ocellus in 4, white spots prominent, no discal line.

*nirmala daksha, M.* (45–50). Kashmir. C. (= *modesta, M.*).

γ. Transitional between last and next. Unf dark maroon, unh white irrorations weak, ocelli never so well developed as is usually the case in the next.

*nirmala kala, Evans.* (45–50). Murree. VC.

δ. Unf bright maroon. Unh white irrorations prominent and often broad discal line; ocelli very variable, may be only 1 or 2 or a complete row.

**nirmala nirmala, M.* (50–55). Kangra—Kumaon. VC. (=*intermedia, cashapa, M.*).

5 (4). Above outwardly prominently paler. Unh white irrorations very prominent, especially towards dorsum; ocelli in 1 and 2 prominent and subequal, none elsewhere, white dots prominent. ♂ upf modified scales on

**D14. Ypthima.—The Rings. (Plate 13).**—*(contd.)*

**lycus lycus*, *DeN.* (37–40). The Plain Threering. Assam. R.

β. Unf striation prominent. Below grey.

*lycus lycoides*, *Wat.* (37–40). N. Burma. R.

4 (2e). Below sub-marginal fascia F and mid termen H ; no discal fascia F. No ♂ brand, no DSF.

α. Unf sub-marginal fascia prominent and widening at tornus. Unh apica ocellus not much larger than rest. Small.

*nareda nareda*, *Koll.* (40–45). The Large Threering. Kashmir—Kumaon NR.

β. Unf submarginal fascia even. Unh apical ocellus much larger than rest and striation coarser.

*nareda newara*, *M.* (45-50). Sikkim—Assam. NR.

γ. As last, but smaller.

*nareda sarcaposa*, *Fruh.* (40–45). Assam—Shan States. NR.

5a (2d). Unf with discal fascia, which forms a loop under the ocellus with the sub-marginal fascia. No ♂ brand. With DSF.

5 (6). Large. Below striation coarse and wide. Unh in WSF ocellus very large.

*watsoni*, *M.* (40-45). The Looped Threering. Manipur—S. Burma. NR.

6 (5). Small. Striation below fine.

α. Unh WSF ocelli very small ; in DSF 2 more or less prominent discal lines.

**asterope mahratta*, *M.* (30-37). The Common Threering. India. Chamba —Assam. C. (=*alemola*, *Swin.*).

β. Unh WSF ocelli large ; in DSF discal lines obscure or absent Unf loop may be obscure.

*asterope burmana*, *Evans.* (28-36). N. Burma. NR.

7a (2c). Unh 3 tornal ocelli in 1, 2 and 3. Uph usually ocelli in 2 and 3 at least. No ♂ brand.

7b (9a). Unh subtornal ocelli on a dark band. Seasonal forms not strongly marked.

7 (8). Upf dark bands from below invisible and ocellus ring obscure.

*ypthimoides*, *M.* (40-55). The Palni Fourring. S. India. NR. (=*robinsoni*, *Dist.*).

8 (7). Upf dark bands and ocellus ring prominent. Below paler ; H whitish, dark bands and ocelli rings prominent.

*chenui*, *Guer.* (36-46). The Nilgiri Fourring. S. India. NR.

9a (7b). Unh subtornal ocelli not on a dark band. Seasonal forms strongly marked.

9 (10). Uph tornal half white.

*ceylonica*, *Hew.* (30–35). The White Fourring. Ceylon. S. India—Bengal, C. (= *gellia*, *Fr.*).

10 (9). Uph not white.

α. Below all fasciæ obsolete.

*hubneri kasmira*, *M.* (35–40). The Common Fourring. Kashmir—Kulu. NR.

β. Below all fasciæ usually prominent. Very variable, especially in DSF.

*hubneri hubneri*, *Kirby.* (30–40). India. Burma. VC. (= *apicalis*, *howra*, *M.* : *atharina*, *But.* : *jocularia*, *Swin.*).

11a (2b). Unh more than one apical ocellus and that in 5 always prominent.

11b (13a). Unh the tornal ocelli in a straight line or that in 2 slightly shifted out.

11 (12). Unh only 2 subtornal ocelli usually, ocellus in 3 absent. Unh 3 sub-apical ocelli in 4, 5 and 6. Below fasciæ prominent. No ♂ brand. No DSF

*bolanica*, *Mar.* (35-40). The Desert Fourring. Baluchistan—Kashmir. R.

12 (11). Unh 3 subtornal and 2 subapical ocelli (rarely an ocellus in 4 and rarely that in 6 absent).

α. Small. ♂ upf no ocellus. Below pale ; unf discal band may be absent. Unh no discal band. ♂ brand more or less prominent.

*avanta singala*, *Fd.* (30–35). The Jewel Fourring. Ceylon. S. India—Central Provinces. NR. (=*thora*, *M.*).

β. ♂ upf ocellus prominent. Below whitish, with prominent bands ♂ brand absent.

*avanta striata*, *Hamp.* (35-45). Nilgiris. R.

γ. ♂ upf no ocellus. Below dark markings more or less prominent. ♂ brand prominent.

**D13. Erebia. The Arguses. (Plate 13).**—(*contd.*)

*scanda, Koll.* (50–60). The Pallid Argus. Kashmir—Sikkim. NR.

6a (4c). Unh prominent sub-marginal and discal fasciæ or lines; striation prominent and uniform; never more than ocelli in 1 and 2.

6 (7). Unh prominent submarginal and discal lines, not fasciæ; submarginal line clear of the ocelli, which are prominent. F dorsum longer than costa. No ♂ brand.

*hybrida, But.* (50–60). The Hybrid Argus. Simla—Kumaon. NR. (= *nada, M.*).

7 (6). Unh prominent submarginal and discal fasciæ, not lines, and former runs into the ocelli; fasciæ widening to apex. F costa longer than or equal to the dorsum. In DSF unh fasciæ and ocelli tend to obsolescence.

*α.* Large. Upf narrow fulvous ring to ocellus. Apex F produced and termen straight. ♂ prominent area modified scales on disc upf. Tornal ocelli unh unpupilled.

*annada cæca, Watkins.* (60-70). The Ringed Argus. Kashmir—Sikkim. NR.

β. Unh tornal ocelli pupilled. Very like last.

*annada annada, M.* Nepal, Bhutan. VR.

γ. Smaller. Upf ocellus with a very broad ring. Apex F rounded. No modified scales in ♂. Unh white irrorations more striated.

**annada orixa, M.* (55–60). Assam—N. Burma. NR. (=*opthalmica, Stg.*).

δ. As last, larger. Upf ocellus with even broader ring. Unh white irrorations very prominent also dark fasciæ and there is a prominent sub-basal fascia as well; tornal ocelli obsolete. No ♂ brand.

*annada polyphemus, Ob.* (60–65). Manipur. R. (=*suroia, Tyt.*).

η. Unh white irrorations reaching apex: dark bands sharply defined and traces of sub-basal fascia. Very like last.

*annada watsoni, Watkins.* (52–56). Chin Hills. R.

8a (4b). Above brown; ocellus with yellow, not fulvous ring.

8 (9). Uph prominent ocellus in 2. Upf second pupil to ocellus absent or minute. Below pale brown; unh striated and with 2 large double ocelli in 1-2 and 5-6, no discal line. No ♂ brand. Wings rounded.

**hyagriva, M.* (42–46). The Brown Argus. Kashmir– Kumaon. R.

9 (8). Uph and unh no ocelli. Unf prominent dark discal line from inside ocellus to vl and postdiscal line to vl, between which ground colour is paler. ♂ prominent dark brown brand mid 1 to base 4, entering cell. Wings produced, especially tornus H which is lobed.

*α.* Below rather pale brown, more or less frosted over white scales F and evenly striated H, no fasciæ.

*narasingha narasingha, M.* (55). The Mottled Argus. Sikkim, Abor Valley. VR.

β. Below paler and with an ochreous tinge, H not striated or uniform, costa, apex and tornus prominently darker.

*narasingha dohertyi, Evans.* (55). N. Burma—Shan States. VR.

**D14. Ypthima.—The Rings. (Plate 13).**

1 (2a). Unh no ocelli or at most a dot in 2. Uph ocellus in 2. Unh variegated, basal area and mid termen ochreous brown, rest nearly white. Unf no loop under ocellus or fascia. No ♂ brand.

*megalomma megalia, DeN.* (45). The Ringless. N. Burma. VR.

2a (1). Unh with ocelli, though often obsolete in DSF.

2b (11a). Unh single apical ocellus in 6.

2c (7a). Unh only 2 subtornal ocelli in 1 and 2, no ocellus in 3 and uph only ocellus in 2.

2d (5a). Unf no loop round ocellus extending to 1 or 2.

2e (4). Unf no prominent sub-marginal dark fascia, at least in WSF. ♂ with brand upf.

2 (3). Unh apical and tornal ocelli not in line, ocellus 2 shifted out. DSF variable, may have a submarginal fascia unf and two discal fasciæ unh.

*inica, Hew.* (30-34). The Lesser Threering. Punjab—Bengal. NR. (= *ariaspa, M.: rara, But.: alkibie, dædalea, complexiva, Swin.*).

3 (2). Unh apical and tornal ocelli in line. No DSF.

*α.* Unf striation obsolete. Below ochreous tinge. Upf ocellus ring obscure,

**D14. Ypthima.—The Rings. (Plate 13).—(*contd.*)**

*avanta avanta, M.* (32-38) Kashmir—Sikkim. NR. (=*ordinata, But.*).

δ. ♂ upf prominent ocellus. Pale and small. Below pale and fasciæ obscure. ♂ brand faint or absent.

*avanta cerealis, Wat.* (32-36). Burma dry zone, R.

γ. As typical *avanta*, but larger and striation below coarser.

*avanta bara, Evans.* (38-42). Sikkim—Burma. NR.

13a (11b) Unh tornal ocelli not in line, ocellus in 2 shifted in more or less.

13 (14a). Unh ocellus in 6 minute. Small. Uph no discal fasciæ. Unf no discal and sub-marginal fascia obscure. No ♂ brand. DSF well marked.

α. Unh discal fascia obsolete.

*philomela tabella, Mar. and DeN.* (25-35). The Baby Fivering. S. India. NR.

β. Unh discal fascia always visible. Paler.

*philomela peguana, Evans* N. Burma. NR.

14a (13). Unh ocellus in 6 more or less prominent. Larger.

14b (20a). Unh the 2 apical ocelli not prominently larger than the rest.

14c (17a). Under 45 mm. expanse.

14d (16a). ♂ upf prominent brand ; discal line not visible. DSF well marked.

14 (15) Below striation coarse and sub-basal band prominent as well as the discal. Uph discal line always more or less well marked.

α. Unh 2 ocelli usually well separated. WSF discal bands very often most prominent on a pale ground.

*baldus madrasa, Evans.* (36-43). The Common Fivering. S. India. VC.

β. Unh apical pair of ocelli and also central pair usually confluent. Small, pale, especially below, fasciæ more obscure

*baldus satpura, Evans.* (32-36) Pachmarhi. NR.

γ. Very variable ; unh in WSF ocelli often very large and confluent. dark and bands not so prominent as in α.

* *baldus baldus, F.* (35-48). Chamba—Burma. VC. (= *humei, El : newboldi, Dist : marshalli, But.*).

15 (14). Below striation fine and darker ; sub-basal bands F and H obsolete. Uph discal band not visible. NR.

*indecora, M.* (35-40). The Western Fivering. Kashmir—Kumaon. NR.

16a (14d). ♂ upf brand absent and discal line visible F and H. Below sub-basal fascia obscure.

α. Very dark, especially below. DSF strongly marked and variegated.

*similis affectata, El.* (38-42). The Eastern Fivering. Assam. R.

β. Very pale, below whitish, sparsely striated. Termen F very straight. DSF ocellated, not strongly marked.

*similis yoma, Evans.* (35-42). Pegu Yoma. R.

γ. Very like *baldus*. DSF ocellated, not strongly marked.

*similis similis, El.* (40-45). Karens—Dawnas. NR.

17a (14c). Over 45 mm. expanse.

17 (18a). Below very pale with dark fasciæ very prominent and discal fascia H straight. Above pale, prominent ♂ brand. Unh tornal double ocellus separated. DSF strongly marked.

*savara, GrS.* (45-50). The Pallid Fivering. Manipur—Burma. C.

18a (17). Unh discal fascia, if present, angled out opposite end cell, fasciæ never so prominent. DSF ocellated.

18 (19). Unh double tornal ocellus separated, apical pair separate.

α. Large and dark. No ♂ brand.

*methora methora, Hew.* (50-55). The Variegated Fivering. Sikkim—Assam R. (=*gela, Fr.*).

β. Smaller and rather paler. ♂ brand obscure. Below fasciæ very faint.

*methora sobrina, El.* (43-52). Karen Hills. R.

19 (18). Unh double tornal ocellus with single iris, apical ocelli with irides touching or coalesced.

α. Dark. Below fasciæ absent on H and obscure on F. No ♂ brand. F produced. Unh ocellus in 5 shifted in.

*dohertyi persimilis, El.* (50-55). The Great Fivering. Manipur. VR.

β. Pale. Below whitish, sparsely striated, fasciæ obscure. ♂ brand prominent. Uph all ocelli showing.

*dohertyi dohertyi, M.* (52-56). Shan States—Dawnas. R.

**D14. Ypthima.—The Rings. (Plate 13.)—(*contd.*)**

20 (14b). Unh apical 2 ocelli much larger than the rest, tornal double ocellus with single iris. No DSF.

α. Small, dark, ocelli small. Unh apical ocelli separated by iris, the irides being coalesced. ♂ brand prominent or obscure. Below no fasciæ.

*sakra nikæa, M.* (45–50). The Himalayan Fivering. Murree—Kumaon. C. (= *matinia, Fr.*).

β. Larger, paler, ocelli larger. Unh apical 2 ocelli with a single iris. ♂ brand obscure. Below no fasciæ.

*sakra sakra, M.* (48–55). Sikkim. C.

γ. As last, paler. Unf discal and sub-marginal fascia show obscurely and rarely also on H.

**sakra austeni, M.* (48–55). Assam—Karen Hills. C.

(Note.—*iarba, DeN.* was described in error from India.)

**D15. Zipoetis.—The Catseyes. (Plate 13).**

Without dry season form.

1 (2). Velvet black with broad white band F and H. Unh 2 small tornal ocelli, large one in 2, double one 5-6, small one in 7, all inwardly bordered by a pale line.

**saitis, Hew.* (60–65). The Tamil Catseye. S. India. R.

2 (1). Above dark velvet brown, no pale bands ; 3 very narrow sub-terminal lines ; apex F paler. Unh ocelli as in last.

**scylax, Hew.* (55–62). The Dark Catseye. Sikkim—Shan States. NR.

**D16. Orsotriæna.—The Nigger. (Plate 13).**

Above dark brown, unmarked, but the discal band from below shows faintly. Below crossed by a white band. Unf ocelli in 2 and 5. Unh in 2, 5 and 6. DSF strongly marked.

α. Below white band broad and tapering to costa F and dorsum H.

*medus mandata, M.* (42–52.) The Nigger. Ceylon—S. India. C. (= *gamaliba, But.*).

β. Below discal band narrow and even ; in DSF may be absent or replaced. by a dark line.

**medus medus, F.* (45–55). Sikkim—Burma. Andamans, Nicobars. C. (=*hesione, Cr.: runeka, M.: cinerea, But.: turbata, Fr.*).

**D17. Erites.—The Cyclops. (Plate 13.)**

Seasonal forms slightly marked.

1a (3). Upf large ocellus in 2 only, remainder from below show faint. Apex F produced.

1 (2) Unh inner band sharply angled in middle as is the discal band. Uph ocelli with broad yellow rings.

**angularis, M.* (50–60). The Angled Cyclops. Karens—S. Burma. NR. (=*pseudofalcipennis, Fr.*).

2 (1). Unh inner band straight or slightly curved, discal band sharply angled.

α. F termen concave opposite end v5. Upf ocellus in 2 pupilled. Uph ocelli small and narrow ringed, no bands showing. Unh ocelli small, bands broad and dark.

*falcipennis falcipennis, WM.* and *DeN.* (50–55) The Common Cyclops. Cachar—Chin Hills. R.

β. F termen even. Upf ocellus not pupilled. Uph ocelli with broad rings and bands show through.

*falcipennis rotundata, DeN.* (50–60). Karen Hills—S. Burma. C. (= *beelinga, M.*).

3 (1a). Upf all ocelli marked. Apex F not produced. Uph and unh as

*argentina delia, Mart.* (50–55). The Eyed Cyclops. Tavoy—S. Burma. VR.

**D18. Ragadia.—The Striped Ringlet. (Plate 13).**

α. Above all 4 bands of the same shade, dusky. Unh ocelli in 3, 4 and 5 with irides conjoined.
*crisilda crito, DeN.* (42-46). Bhutan—Manipur. R.
β. Above pale band (3rd from base) clear white, narrow. Uph sub-marginal band very narrow. Uph dark band bearing the ocelli below much wider than the pale bands on either side. Unh ocelli in 3, 4 and 5 with irides conjoined.
*crisilda crisilda, Hew.* (42-46). Cachar—Assam. NR.
γ. Above discal white band broader on F also sub-marginal band H, where the dark band bearing the ocelli below is only slightly wider than the pale bands; upf sub-marginal band narrow white. Unh ocelli in 4 and 5 with irides conjoined or separate.
*crisilda critolaus, DeN.* (42-46). Karens—Dawnas. R.
δ. Above as last, but smaller and darker, white bands narrower. Upf sub-marginal band may be obsolete.
**crisilda critolina, Evans.* (37-42). Dawnas to S. Burma. R.

**D19. Cœlites.—The Blue Catseyes. (Plate 14).**

Above dark brown, bases broadly glossed purple blue; below dull brown with a diffused pale band. ♂ uph long erect hairs along vl and a prominent dark brand along outer two-thirds of vl.
1 (2). Unh ocelli in 4 and 5 much smaller than ocelli in 2, 3 and 6; no discal band; dark discal line before ocelli angled out opposite end cell.
*nothis adamsoni, M.* (75-85). The Scarce Catseye. Bhamo. VR
2(1). Unh all ocelli small and equal, prominent pale straight discal band and no dark discal line.
**epiminthia binghami, M.* (75-85). The Blue Catseye Dawnas—S. Burma. R.

**D20. Neorina.—The Owls (Plate 14). No male brand.**

1 (2a). H no tail at v3. Upf broad yellow discal band.
**hilda, Wd.* (80-95). The Yellow Owl. Sikkim—Assam. R.
2a (1). H tail at v3.
2 (3). Upf broad white discal band. Uph no ocelli.
*patria westwoodi, M.* (100-110). The White Owl. Assam—N. Burma R.
3 (2). Upf broad yellow discal band. Uph ocelli in 2 and 3.
*chrishna archaica, Fruh.* (95-105). The Tailed Yellow Owl. S. Burma. VR.

**D21. Anadebis.—The Diadems. (Plate 14). No male brand.**

1 (2). Above and below complete postdiscal row ocelli.
**himachala, M.* (60-85). The Dusky Diadem. Sikkim—N. Burma. NR. (=*sita, Fd*).
2 (1). Above and below complete postdiscal row white spots, which are very large on H.
**diademoides, M.* (80-90). The White Diadem. Karens—S. Burma. R.

**D22. Melanitis.—The Evening Browns. (Plate 14.) No male brand.**

1 (2a). WSF below grey, striated dark brown, with large prominent ocelli. Upf always prominent, white pupilled, black spot in 3, extending into 4 and a white spot against its upper, outer, edge; paler above the spot. DSF the black and white spots prominent with on the inner and lower side a narrow, prominent, sharply defined ochreous bar; in 5 a similar ochreous bar that very rarely extends above 5. F produced; in WSF termen just angled below v5, prominently so in ♀ and in DSF ♂, falcate in DSF ♀. H termen equally tailed at vl and v3.
**leda ismene, Cr.* (60-80). The Common Evening Brown. Ceylon, India, Burma, Andamans. VC. (= *determinata, But.*).
2a (1). WSF never with large ocelli below. DSF ochreous markings never so restricted and so well defined.
2 (3). WSF below ocelli small, but more or less complete and usually well formed. DSF with termen ashy, especially so in ♂. F WSF apex not pro-

**D22. Melanitis.—The Evening Browns. (Plate 14)**—*(contd.)*

duced and termen straight or very faintly angled below v5. H WSF tailed only at v3 and termen straight to tornus ; DSF tail at v1 much shorter than tail at v3.

α. WSF ♂ above very dark, unmarked, apex F paler ; ♀ upf black spots prominent, white spots small or absent, pale area above to costa. Below ♂ very dark, ♀ ferruginous, ocelli not so well formed as usual. DSF no ochreous markings upf, black and white spots more or less prominent and pale costal bar.

*phedima tambra, M.* (70–80). The Dark Evening Brown. Ceylon. NR.

β. Smaller and not so dark. WSF below ocelli well developed and discal line prominent, ferruginous.

*phedima varaha, M.* (60–70). S. India. NR. (= *ampa, Swin.*).

γ. WSF with costal ochreous bar beyond cell, no black and white spots ; ♀ entire apex ochreous with small pupilled ocellus in 3, indistinct black spot above and 2 small apical black spots. DSF broad yellow apex, entering cell and to margin in ♀, black and white spots prominent in ♀, small and well separated in ♂ as in ♀ WSF.

*phedima bethami, DeN.* (75-85). Pachmarhi. NR.

δ. As large as *tambra*. WSF ♂ below bands ill-defined. DSF upf ochreous mark in ♀ as in No. 1, but not sharp defined and reaches costa.

*phedima galkissa, Fruh.* (60–75). Kashmir—Kumaon. NR.

η. As last, but larger and darker, especially in DSF. DSF ♂ ochreous costal bar present.

*phedima bela, M.* (65–80). Sikkim—N. Burma. C. (= *aswa, M.: tristis Fd.*).

ζ. As last, but smaller. DSF ochreous markings reduced. Below ocelli or spots smaller. WSF below tornus edged rich reddish brown.

*phedima ganapati, Fruh.* (65–75). Karen Hills—S.Burma. C. (= *aswina, Fr.*).

3 (2). WSF below small white spots rather than ocelli. DSF margins not ashy.

α. Above DSF and WSF nearly alike ; black spots more or less prominent, especially white spots in ♂ ; margin F shining black in ♂ (slightly powdered in DSF), dusted ochreous in ♀ (especially in WSF) ; pale costal bar beyond cell dusky in ♂, dull ochreous in ♀. Below dark discal line prominent in WSF and apex in ♂ yellowish. DSF pale smoky, with black basal patches, more prominent in ♂. F produced and termen prominently angled below v5, falcate in ♀.

*zitenius gokala, M.* (75–85). The Great Evening Brown. S. India. R. (= *aculeata, Hamp.*).

β. As next, but smaller and apical ochreous area very wide, black spots prominent.

*zitenius kalinga, M.* (75–85). Godaveri Valley. R.

γ. WSF upf black spots obscure and white spots usually absent : prominent costal ochreous bar, which, especially in ♀, is often continued nearly to the tornus outside the black spots. DSF ochreous markings wider, black and white spots prominent and ochreous area encircles them ; ochreous area reaches termen in ♀. Shape as in No. 1 in both seasonal forms

* *zitenius zitenius, Herbst.* (80–95). Kumaon—Karen Hills. NR. (= *vamana M.: duryodana, Fd.: decolorata, semifasciata, Fr.*)

δ. Above ♂ WSF unmarked and ground colour with a dull ferruginous tinge. ♀ black spots absent or at most 2 small dots in 3 and 4 ; the ochreous costal bar continues as a broad even discal band to tornus, where it becomes duskier. DSF as last, smaller and ochreous markings more restricted.

*zitenius auletes, Fruh.* (75–85). Dawnas—S. Burma. R.

η. DSF as γ. WSF ♂ upf ochreous costal bar restricted to 5 and 6, no black or white spots ; ♀ ?

*zitenius andamanica, Evans.* (70–85). Andamans. R.

**D23. Cyllogenes.—The Evening Browns. (Plate 14).**

1 (2). Above strong purple tinge. Upf apical yellow band narrow and not to termen. ♂ upf large black brand bases 2-5 and end cell.

* *suradeva, M.* (75–85). The Branded Evening Brown. Sikkim—Bhutan. R.

**D23. Cyllogenes.—The Evening Browns. (Plate 14)—(*contd.*)**

2 (1). Above no purple tinge (faint in ♀). Upf yellow band broad and reaches termen. No ♂ brand.
*janetæ, DeN.* (90–95). The Scarce Evening Brown. Bhutan—Assam. VR.

**D24. Parantirrhœa.—The Travancore Evening Brown.**

Above dark brown with a prominent violet purple band upf. ♂ upf brand on dorsum and wing folded over in middle, vl much distorted; upf prominent brand near end vl.
*marshallii, WM.* (55–65). The Travancore Evening Brown. Travancore. VR.

**D25. Elymnias.—The Palmflies. (Plates 14-15).**

1a (12a). ♂ upf no brand; uph brand base 6, extending to cell and 7, covered by tuft of hairs, which may be in 1 or 2 pencils.
1b (5a). F apex not produced.
1a (3a). ♂ tuft in 2 pencils.
1 (2). Upf margin not chestnut, usually with blue or white spots. ♀ tawny with white banded black apex upf.
α. ♂ uph margin broad yellow; upf blue spots faint. ♀ uph margin ochreous.
*hypermnestra fraterna, But.* (60–80). The Common Palmfly. Ceylon. C. (= *merula, Swin.*).
β. ♂ ♀ long tail at v3 H. ♂ upf bluish white spots prominent. ♀ uph white sub-marginal spots obsolete.
*hypermnestra caudata, But.* (65–80). S. India. NR.
γ. As α but ♂ uph margin chestnut and upf blue spots prominent. ♀ uph margin dark brown.
* *hypermnestra undularis, Drury.* Bengal. Dun—N. Burma. C.
δ. As last, but upf ♂ blue spots more developed and contiguous, extending often to upper part H. ♀ dark margin broader.
*hypermnestra tinctoria, M.* S. Burma. C.
♀ *v. paraleuca, Fruh.* Uph disc whitish. NR.
2 (1). Upf margin chestnut. ♂ ♀ alike. Above unspotted, except rarely in ♀.
α. Above chestnut margins very wide and pale.
*cottonis obnubila, Mar. and DeN.* (65-75). The Chestnut Palmfly. Karen Hills—S. Burma. R.
β. Chestnut margins narrow and dark. ♀ uph with obscure sub-marginal white spots.
*cottonis cottonis, Hew.* (70-80). Andamans. NR.
3a (1a). ♂ tuft single. H caudate at, v4.
3 (4). Unh prominent ocelli, appearing uph in ♀ on a pale margin.
**panthera mimus, WM. and DeN.* (65–75). The Nicobar Palmfly. Nicobars. R. (= *dolorosa, But.*).
4 (3). Unh no ocelli. ♂ ♀ above dark brown, broad oblique white band F and H, bearing outwardly on H a row of white dots.
**dara dædalion, DeN.* (60–65). The White-banded Palmfly. Dawnas—S. Burma. R.
5a (1b). F apex produced. ♂ tuft single in No. 9, double in rest.
5b (11). Termens scalloped.
5c (7a). Upf dark brown with no discal markings. H caudate.
5 (6). Above narrow pale margin F and H outer third pale yellowish white, striated dark brown.
**singala, M.* (75–90). The Ceylon Palmfly. Ceylon. NR.
6 (5). Above termen broadly dull blue and dull chestnut at tornus H (bright chestnut in ♀). Unh white spot in 7 prominent.
*pealii, WM.* (75–85) Peal's Palmfly. Assam. VR.
7a (5c). Above markings not confined to margin.
7 (8a). Above dull greenish blue, all veins broadly black. Caudate.
α. Above streaks between veins bluish.
*timandra, Wall.* (75–85). The Tiger Palmfly. Sikkim—N. Bur-
NR.

**D25. Elymnias.—The Palmflies. (Plates 14 & 15)—(*contd.*)**

β. Above streaks greenish ; in ♀ veins broad chestnut instead of black.
*nesæa cortona, Fruh.* S. Burma. NR.

8a (7). Upf dark brown with discal blue or white markings and apex shot blue. Only caudate in *saueri*.

8b (10). Upf markings consist of spots, 2 spots in 3 and often in 2.

8 (9). Upf ♂ spot in cell and basal half of 2.

α. As next, smaller. Uph irregular white terminal spots. Below more broadly white streaked and dotted.
*malelas nilamba, Fruh.* (75-85). The Spotted Palmfly. Kumaon, Nepal. R.

β. ♀ uph whitish, striated dark brown, veins broad black, below dull, basal half hardly striated ; outer half evenly striated.
**malelas malelas, Hew.* (80-100). Sikkim—Dawnas. NR. (= *leucocyma, But.*).

9 (8). Upf no spot in cell. Below highly variegated, rather as No. 7, mottled and striated all over. H more dentate. ♀ upf apex ferruginous.
*casiphone saueri, Dist.* (80-95). The Malayan Palmfly. Dawnas—S. Burma. VR.

10 (8b). Upf markings consist of broad blue or purple stripes, single in 3 and 2. Uph postdiscal row small white spots. ♂ ♀ alike.

α. Large.
*patna patna, Wd.* (80-100). The Blue Striped Palmfly. Kumaon—N. Burma. NR.

β. Smaller. H apex rather acute and termen straight.
*patna patnoides, M.* (75-90). Karen Hill—Dawnas. R.

11 (5b). Termens even. Apex F sharp pointed and termen concave below. Upf with broad discal blue streaks.
**penanga chelensis, DeN.* (70-75). The Pointed Palmfly. Assam—Burma. VR.

12a (1a). ♂ upf brand mid 1a, covered by recumbent tuft hairs ; uph brand as in rest, tuft single.

12 (13). Upf bluish white with broad black veins. Uph dorsal two-thirds white or yellowish, unmarked. Unh dorsal half yellow and usually at base 1a and 1 a black bordered red area.

α. ♂ above black veins well separated. Uph white.
*vasudeva vasudeva, M.* (80-90). The Jezabel Palmfly. Sikkim. R. (= *thycana, Wall.*).

β. DSF upf greenish yellow spaces ; H yellow ; ♀ F all bluish white with narrow black veins. WSF nearly as next.
**vasudeva deva, M.* (80-90). Assam. R.

γ. ♂ more streaked green and in ♀ broad black veins form a confluent discal band. Unh ♀ red basal area absent.
*vasudeva burmensis, M.* (80-90). Burma. R.

13 (12). Above dark brown with termen broadly bluish green. Apex F not produced, costa no longer than dorsum,
*esaca andersonii, M.* (60-65). The Green Palmfly. Mergui. VR.

**E. Amathusiidæ.—The Amathusiids. Key to Genera.**

1a (10a). F. dcv a tubular vein throughout. H v1a always longer than the body, if v1 is as long as v2

1b (7a). H cell completely open.

1c (4a). F lower end cell nearer termen, ends at angulation of v4.

1d (3). F vs 11 and 12 free.

1 (2). F origin v10 from before half way along v7, far from origin v9; upper dcv long, lower nearly straight. H quadrate. ♂ uph small tuft mid v1.

*Xantholæ'nia, Wd.* Pan. (Plate 15).

2 (1). F origin v10 from beyond half way along v7; origins 8, 9 and 10 close together; upper dcv very short lower very concave at upper end. ♂ uph brand about base 6 and a prominent tuft from 1 below base cell; there may be a brand on 1a near tornus, covered by a tuft. F dorsum bowed.

*Faunis, Hub.* The Fauns (plate 15). (= *Clerome, Melanocyma, Wd.*).

3 (1d). F vs 11 and 12 anastomosed, cell as in No 2. ♂ tuft along v1a near tornus uph, inconspicuous.

*Æmona, Hew.* The Dryads. (Plate 16).

4a (1c). F lower end cell nearer base, angulation of v4 far beyond end cell.

4 (5a). F vs 11 and 12 free, v10 absent, ♂ uph brand above origin v7 and tuft from base cell; unf brand in 1a near base.

*Sticopthalma, Fd.* The Junglequeens. (Plate 15).

5a (4). F vs 10 and 11 anastomosed to v12.

5 (6). F vs 5 and 6 well separated at base, 6 much nearer 7. H v4 nearly touches v5. ♂ unf base 1 & 1a polished; uph tuft from cell near base, brand as in last may be present.

*Thaumantis, Hub.* The Jungleglories. (Plate 16) (= *Nandogæa, M.*).

6 (5). F vs 5 and 6 approximate at base, far from v7. H v5 curved, not angled. ♂ abdomen with prominent dark tuft of hairs on either side; uph small tuft on 1a and with or without a very large black brand with its centre at base of 7, covered by a tuft of hairs from base cell and a second tuft from base 6.

*Thauria, M.* The Jungleking. (Plate 15).

7a (1b). H cell closed more or less, tornus produced and more or less lobed.

7b (9). F no spur from v4.

7 (8). F all veins free. ♂ uph fold and tuft in 1a and long erect hairs along base v1; abdomen with a tuft on either side.

*Amathusia, F.* The Palmking. (Plate 16)

8 (7). F vs 11 and 12 anastomosed. ♂ uph large dark brand in 2, extending to base of 1 and 2; prominent tuft below v1 near base, v1 distorted at base and hairy.

*Amathuxidia, Stg.* The Kohinoor. (Plate 16).

9 (7b). F v4 with spur towards v5 from its angulation beyond cell: vs 10 and 11 anastomosed to 12. ♂ unf dorsum polished and bowed, v1 also bowed; with 3 tufts overlying brands, viz., base 7, near base cell, near end cell and also a fourth erectile tuft on v1 towards base, v1 much distorted.

*Zeuxidia, Hub.* The Saturns. (Plate 16).

10a (1a). F dcv incomplete as a tubular vein in the middle. H produced, v1 as long as v2, but v1a not longer than body.

10 (11). F v10 present; vs 10 and 11 anastomosed to v12. ♂ uph brand about base 3 and in 1a.

*Discophora, Bdv.* The Duffers. (Plate 16).

11 (10). F v10 absent; v11 anastomosed to v12. ♂ uph prominent large hairy patch all over cell.

*Enispe, Dbl.* The Caliphs. (Plate 16).

KEY TO SPECIES

**E1. Xanthotænia.—Pan. (Plate 15).**

Above chestnut brown; upf with prominent yellow band and sub-apical spot. Below ocellated, ground yellow brown.

**busiris*, *Wd.* (60–70). Pan Dawnas—S. Burma. (=*obscura*, *M.*).

**E2. Faunis.—The Fauns. (Plate 15).**

1a (3). Above fulvous brown, no dark markings showing through. ♂ no brand on v1a.

1 (2). Below uniform dark brown, discal yellow spots small, dark lines dull, discal line much curved at ends and on H looped to the basal line.

**arcesilaus*, F. (65–75). The Common Faun. Sikkim—Burma. C.

2 (1). Below pale discal spots very large, dark lines narrow and prominent, straighter, on H looped to the outer line.

α. Below pale spots yellow. Unf discal line straight at upper end, looped to outer line at lower end.

*eumeus assama*, *Wd.* (85–95). The Large Faun. Assam. R.

β. Below pale spots white. Unf discal line curved at upper end.

*eumeus incerta*, *Stg.* (80–90). Shan States. VR.

3 (1a). Above smoky whitish with dark bands showing through from below; H tornal area broadly yellow. Below very prominent dark bands on a smoky ground. ♂ uph brand on v1a.

**faunula faunuloides*, *DeN.* (100–112). The Pallid Faun. Chin Hills. VR. (The plate represents typical *faunula* from the Malay peninsula).

**E3. Aemona.—The Dryads. (Plate 16).**

1 (2). Above ochreous yellow with dusky apex F, no veins darkened. In DSF outer discal band uph obscure and ocelli from below showing through more or less.

*amathusia*, *Hew.* (75–90). The Yellow Dryad. Sikkim—Assam. R. (=*pealii*, *WM.*).

2 (1). ♂ upf apex and termen whitish with darkened veins: in ♀ above entirely whitish except ochreous tornal area H.

*lena*, *Atk.* (80–100). The White Dryad. Shan States, Karen Hills. R.

**E4. Sticopthalma.—The Junglequeens. (Plate 15).**

1 (2a). Uph submarginal dark line narrow. Above bright chocolate brown broad yellow pre-apical band F and margin H.

α. Upf pre-apical band to tornus; uph yellow margin broad. Above inner sub-marginal markings obscure or absent.

*nourmahal nurinissa*, *DeN.* (95–105). The Chocolate Junglequeen. Bhutan. R.

β. Upf pre-apical band not to tornus; uph yellow margin narrow. Above inner sub-marginal markings narrow and prominent.

**nourmahal nourmahal*, *Wd.* Native Sikkim. Naga Hills. R.

2a (1). Uph dark sub-marginal marking large and prominent.

2 (3a). Uph no dark spots on a pale ground inside the broad dark sub-marginal line; basal area bright chocolate brown from base merging into dark brown disc, whence margin is bluish white, bearing the dark sub-marginal band. Upf base chocolate brown, outer area bluish white.

α. Above milky white. Uph pale terminal area narrow.

*camadeva camadeva*, *Wd.* (125–150). The Northern Junglequeen. Sikkim. NR.

β. Above milky white areas suffused violet.

*camadeva nicevillei*, *Rob.* Assam. NR.

γ. Paler. Upf golden yellow costa and small chevrons. Below transverse lines straighter.

*camadeva nagaensis*, *Roth.* Naga Hills. VR.

δ. Pale. Uph pale terminal area much wider and sub-marginal band narrower.

*camadeva camadevoides*, *DeN.* N. Burma. R.

3a (2). Uph a postdiscal series of conspicuous black spots adjoining the dark sub-marginal line on the inside.

**E4. Sticopthalma.—The Junglequeens. (Plate 15).—(*contd.*)**

3b (5) Uph no conspicuous series pale discal spots inside the postdiscal row.
3 (4). Above yellow, base F and all H suffused darker fulvous. Uph postdiscal spots shield shaped and broadly joined to the sub-marginal band.
*howqua sparta, DeN.* (140). The Chinese Junglequeen. Manipur. VR.
4 (3). Above outer half F and termen H white, bases fulvous. Uph postdiscal spots diamond shaped, joining the sub-marginal line narrowly and looking like arrowheads.
α. Above white areas faintly tinged yellow, basal areas bright, rather dark, fulvous.
**louisa tytleri, Roth.* (125–150). The Burmese Junglequeen. Manipur—N. Burma. NR.
β. Above much paler, white areas tinged lilacine. Uph tawny colour surrounds the sagittate spots.
*louisa fruhstorferi, Rob.* N. Shan States. R.
γ. As last but uph tawny colour clear of the sagittate spots.
*louisa louisa, WM.* Karen Hills—S. Burma. NR.
5 (3b). Uph conspicuous series diamond shaped white spots inside the postdiscal band of conjoined spots, making three marginal pale bands. Upf also with 3 rows of white spots, inner row ending in a large pale costal area. Ground colour above greenish steel blue, washed olive brown.
*godfreyi, Roth.* (125–140). Godfrey's Junglequeen. Dawnas—S. Burma. VR.

**E5. Thaumantis.—The Jungleglories (Plate 16).**

1 (2). Above dark brown with a prominent iridescent blue discal band on each wing. Below uniform dull dark brown. ♂ tuft small, no brand.
**diores, Db.* (95–115). Jungleglory. Sikkim—Burma. NR. (=*ramdeo, Wd.*)
2 (1). Above brilliant metallic blue to base, no discal band. Below base and margin paler. ♂ with tuft and brand.
*lucipor, Wd.* (100–110). The Dark Jungleglory. S. Burma. VR.

**E6. Thauria.—The Jungleking. (Plate 16).**

Above dark brown, pale discal band F; H costa narrowly and tornus broadly bright chestnut ochreous.
1 (2). ♂ uph no brand or tuft around cell. ♂ discal band yellowish and broad; ♀ band white and broader.
**lathyi amplifascia, Roth.* (110–120). The Jungleking. Manipur—S. Burma. R.
2 (1). ♂ uph with large brand and tufts about cell.
α. Upf band wide.
*aliris intermedia, Crow.* (110–120). The Tufted Jungleking. N. Burma. VR.
β. Upf band narrow.
*aliris pseudaliris, But.* Karen Hills—S. Burma. VR.

**E7. Amathusia.—The Palmking. (Plate 16).**

α. Above dark brown, yellow pre-apical band on F and subterminal band H in ♂. Below dark and all markings prominent; H only 2 ocelli.
**phidippus friderici, Fruh.* (100–125). The Palmking. S. India. Bassein, Karens—S. Burma. R.
β. ♂ above ferruginous brown, unmarked. Below paler and markings fainter; H 3 or 4 ocelli. ♀ yellow banded.
*phidippus andamanica, Fruh.* Andamans. R.

**E8. Amathuxidia.—The Kohinoor. (Plate 16).**

Above dark brown, upf broad band, pale blue in ♂, yellow in ♀: uph unmarked. Below pinkish lavender with dark lines prominent and 2 ocelli H.
**amythaon, Db.* (110–130). The Kohinoor. Sikkim—Burma. R. (=*poritheus, Fd; westwoodi, But.*).

**E9. Zeuxidia.—The Saturns. (Plate 16).**

1a (3). ♂ uph with prominent blue border.

1 (2). ♂ uph blue border not above v4 and widening to tornus. Upf blue band narrowing to tornus. ♀ upf white discal band and white spots becoming yellow outwardly; uph terminal area rather obscure yellow.

**amethystus masoni, M.* (110-120). The Saturn. Karen Hills—S. Burma. R.

2 (1). ♂ uph blue border continued to costa and narrowing to tornus. ♀ upf marked as in last, but all markings violaceous.

*doubledayi chersonesia, Fruh.* (110-120). The Scarce Saturn. Dawnas—S. Burma. VR.

3 (1a). ♂ uph no blue border; upf blue area extending along cell and costa nearly to base. ♀ spots pure white and apex H white. ♂ unf prominent white brand in 1 near base; uph dark blue area cell to tornus and shining area in cell.

*aurelius. Cr.* (140-160). The Great Saturn. Mergui. VR.

**E10. Discophora.—The Duffers. (Plate 16).**

1a (3a) ♂ uph brand in 3 large, not pale edged and so not conspicuous, nearly reaches v5.

1 (2). ♂ ♀ with black or yellow spots, no discal continuous band.

α. ♂ upf all 3 rows black spots equally prominent; H no spots.

*tullia muscina, Stich.* (80-90). The Common Duffer. N. Kanara, VR.

β. ♂ upf rows of spots not equally prominent. ♂ ♀ upf spots blueish white and ♀ with a yellow patch end cell, enclosing a black spot; ♂ uph with spots.

**tullia zal, Wd.* (80-90). Sikkim—Burma. C. (= *despoliata, Stich.*).

*v. indica, Stg.* ♂ uph no spots. ♀ yellow patch end cell absent. NR.

*v. spiloptera, DeN.* ♂ upf yellow spots. ♀ yellow patch end cell not enclosing black spot. R.

2 (1). ♂ ♀ upf with broad yellow discal band.

*deo, DeN.* (90). The Banded Duffer. Manipur—N. Burma. VR.

3a (1a). Uph brand in 3 small, pale edged and very prominent, not nearly to v5.

3 (4). ♂ upf with blueish white spots and ♀ with a blueish white band and spots and uph yellow spots.

α. ♂ upf blueish white spots obscure. ♀ lower part of discal band more broken up into spots.

*lepida ceylonica, Fruh.* (85-95). The Southern Duffer. Ceylon. R.

β. ♂ apical blueish white spots prominent and conjoined.

**lepida lepida, M.* S. India. R. (= *significans, Stich*).

4 (3). ♂ upf with yellow spots. ♀ upf with yellow discal band and spots and uph with yellow spots.

α. ♂ upf yellow spots more or less prominent.

*continentalis continentalis, Stg.* (85-100). The Great Duffer. Bengal. Sikkim—Burma. NR. (= *celinde, Auct: semineclis, Stich*).

β. ♂ yellow markings upf obscure except for an elongated spot near base 6. ♀ termen yellow edged.

*continentalis andamanensis Stg.* Andamans. R.

**E11. Enispe.—The Caliphs. (Plate 16).**

1 (2). Above dark brown with blueish white spots and band upf; uph obscure yellow spots in ♂, prominent in ♀.

α. Upf band narrower and becoming macular posteriorly. ♂ uph yellow spots fairly prominent.

*cycnus verbanus, Fruh.* (80-95). The Blue Caliph. Bhutan. Cachar. R.

β. Upf band broader. ♂ uph yellow spots absent.

**cycnus cycnus, Wd.* Assam—N. Burma. R.

2 (1). Above brick red with black bands and spots.

*euthymius, Db.* (85-95). The Red Caliph. Sikkim—Burma. NR. (= *intermedia, Roth: melæna, Tyt: silhetensis, Stg*).

**v. tessellata, M.* Above dark markings broader; upf black line in continuation of black markings defining end cell. NR.

**F. Nymphalidæ.—The Nymphalids. Key to genera.**

1a (51a). Hindwings channelled to receive abdomen.
1b (48a). F v12 not swollen.
1c (18a). Larva, where known, smooth and the head with horns. Palpi with no long projecting hairs.
1d (4a). F v8 from before the middle of v7. Eyes smooth. Palpi smooth and white. Antennæ longer than half costa, club gradual. F cell closed and upper apex right angled. Body stout.
1e (3). F costa serrate. H pre-costal as a spur forward. Larva with 4 horns on the head.
1 (2). H cell closed.
*Charaxes, Ochs.* The Rajahs. (Plate 17). (= *Haridra, M.*).
2 (1). H cell open.
*Eriboea, Hüb.* The Nawabs. (Plate 17). (= *Eulepis, Dal : Murwareda, M.*).
3 (1e). F costa smooth. H precostal curved back.
*Prothoe, Hüb.* The Begums. (Plate 17). (= *Agatasa, M.*).
4a (1d). F v8 never from before the middle of v7.
4b (14a). F upper end of cell opposite well before the origin v3.
4c (9a). Palpi white or brown throughout. Antennæ longer than half costa.
4 (5a). F upper end of cell obtuse ; v10 ex 7 ; cell open. Eyes smooth. Antennæ club sharply spatulate.
*Helcyra, Fd.* The White Emperor. (Plate 17).
5a (4). F upper end of cell right angled or acute ; v10 ex cell. Antennæ club stout, gradual.
5 (6a). Cells closed. Eyes hairy. F v9 from well beyond end cell. H pre-costal forked. Forelegs hairy.
*Dilipa, M.* The Golden Emperor. (Plate 18).
6a (5). Cells open.
7 (7a). F v3 much shorter than the mv. Genitalia of ♂ protruding. Eyes hairy.
*Eulaceura, M.* The Elegant Emperors. (Plate 18).
7a (6). F v3 nearly equal to the mv. ♂ genitalia not protruding.
7 (8). F origin v8 nearer termen than origin v9. Eyes smooth or hairy. Larva with 2 horns.
*Apatura, F.* The Emperors. (Plate 18). (= *Potamis, Hüb. : Chitoria, Dravira, Mimathyma, Narsenga, M.*).
8 (7). F origin v8 nearer origin v9 than termen. Eyes smooth.
*Herona, Db.* The Pasha. (Plate 18).
9a (4c). Palpi black or black and white. Antennæ equal to half the costa. Cells open. H pre-costal mostly straight.
9b (12a). F v10 ex 7. Larva with 2 horns.
9 (10a). Palpi very long, black with a white tip.
*Sephisa, M.* The Courtiers. (Plate 18). (= *Castalia, M.*).
10a (9). Palpi short, only white at base.
10 (11). Eyes smooth.
*Euripus, Wd.* The Courtesans. (Plate 18).
11 (10). Eyes hairy.
*Diagora, Snell.* The Sirens. (Plate 18). (= *Parhestina, M.*).
12 a (9b). F v10 ex cell. Eyes smooth. Palpi mostly black.
12 (13). F end v 12 long before origin of v9.
*Hestina, Wd.* The Circe. (Plate 18).
13 (12). F v12 ends after the origin of v9.
*Sasakia, M.* The Empress. (Plate 18).
14a (4b). F upper end cell opposite origin of v3, or beyond. Cells closed. Antennæ and palpi black.
14b (16a). F upper end of cell right angled. H precostal straight or curved

**F. Nymphalidæ.—Key to genera.**—*(contd.)*

14 (15). F lower dcv straight. Antennæ equal to one-third costa. Eyes hairy. H v8 ends before apex.

*Calinaga*, M. The Freaks. (Plate 21).

15 (14). F lower dcv highly curved. Antennæ equal to half the costa. Eyes smooth. H v8 ends at apex as usual.

*Penthema*, *Wd.* The Kaisers. (Plate 21). (= *Isodema*, *Fd.*).

16a (14b). F upper apex of cell acute. Eyes hairy.

16 (17). H pre-costal straight. Antennæ longer than half costa.

*Dichorragia*, *But.* The Constable. (Plate 19).

17 (16). H pre-costal curved forward. Antennæ shorter than half costa.

*Stibochiona*, *But.* The Popinjay. (Plate 19).

18a (1b). Larva not smooth.

18b (30a). Larva with tubercles, never with more than a few rows of spiny processes. Palpi and antennæ never black.

18c (20a). Larva on either side with a complete row of very long horizontal pinnate processes. Eyes and palpi smooth. F upper end cell opposite beyond the origin of v3, right angled or acute. Pre-costal well curved forward and arises from well before the origin of v8. F origin v11 from far before the end of the cell, opposite origin v2. Antennæ longer than half costa, club gradual.

18 (19). F cell, if closed, lower dcv ends at origin v3.

*Euthalia*, *Hübn.* The Barons, Counts, etc. (Plates 19–20). (= *Aconthea*, *Hors*: *Symphædra*, *Hub*: *Tanæcia*, *But*: *Itanus*, *Db*: *Cynitia*, *Snell*: *Felderia*, *Semp*: *Nora*, *DeN*: *Bassarona*, *Chucapa*, *Dophla*, *Haramba*, *Kirontisa*, *Labranga*, *Limbusa*, *Mahaldia*, *Rangasa*, *Saparona*, *Sonepisa*, *Tasinga*, *Zalapia*, *M.*).

19 (18). F cell closed and lower dcv ends well beyond origin v3.

*Adolias*, *Hübn.* The Archdukes. (Plate 20).

20a (18c). Larva without long horizontal pinnate spines.

20b (27a). Larva without long horns on the head.

20c (22a). H precostal from beyond origin v8. Eyes smooth. Cells closed. F upper apex cell acute and far beyond opposite origin v3.

20 (21). Palpi with thin long hairs. H pre-costal forked at end. F v9 distorted and arises just before 8.

*Parthenos*, *Hübn.* The Clipper. (Plate 21).

21 (20). Palpi smooth. H pre-costal curved forward. F vs 9, 10, 11 distorted, but 9 rises well before 8.

*Lebadea*, *Fd.* The Knight. (Plate 21).

22a (20c). H pre-costal rises from origin v8. Antennæ club slender.

22b (26a). H v8 reaches apex. Palpi smooth. H pre-costal curved forward.

22 (23a). F v1 highly sinuous, vs 9 and 10 distorted. Cells closed. Eyes smooth. Antennæ equal to half costa.

*Neurosigma*, *But.* The Panther. (Plate 21).

23a (22). F v1 straight.

23 (24a). F lower dcv highly concave. H cell open or shut; F shut. Eyes smooth. Antennæ equal to half costa.

*Abrota*, *M.* The Sergeant-major. (Plate 21).

24a (23). F lower dcv nearly straight. Antennæ equal to or longer than half costa. Eyes smooth or hairy. Cells open or shut.

24 (25). F upper end cell opposite origin v3 or beyond.

*Liminitis*, *F.* The Admirals, etc. (Plates 21-22). (= *Najas*, *Hübn*: *Auzakia*, *Bhagadatta*, *Chalinga*, *Moduza*, *Parasarpa*, *Sumalia*, *M.*).

25 (24). F upper end cell before opposite origin v3.

*Pantoporia*, *Hübn.* The Sergeant. (Plate 22). (= *Athyma*, *Wd*: *Chendrana*, *Condochates*, *Kironga*, *Parathyma Tacola*, *Tacoræa*, *Tatisia*, *Tharasia*, *M.*).

26 (22b). H v8 not to apex. Cells open. Eyes smooth. Palpi hairy. F upper end cell oppos te far beyond origin v3; v10 ex cell or 7. H pre-costal straight.

*Neptis*, *F.* The Sailors and Lascars. (Plate 22). (= *Andrapana*, *Bimbisara*, *Lasippa*, *Pandassana*, *Rahinda*, *Stabrobates*, *M.*).

27a (20b). Larva with very long horns on the head and very few processes on the body. Cells shut. Eyes smooth. H pre-costal from beyond origin v8. Palpi smooth. Antennæ equal to half costa, club slender.

**F. Nymphalidæ.—Key to genera—***(contd.)*

27b (29). F v9 not to apex. Palpi very long.

27 (28). F v10 ex cell ; vs 10 and 11 free.

*Cyrestis, Bdv.* The Maps. (Plate 23). (= *Marpesia, Hüb* : *Apsithra, M* : *Sykophages, Mart*).

28 (27). F v10 ex 7 ; vs 10 and 11 anastomosed.

*Chersonesia, Dist.* The Maplets. (Plate 23).

29 (27b). F v9 to apex ; v10 ex cell. Palpi comparatively short.

*Pseudergolis, Fd.* The Tabby. (Plate 23).

30a (18b). Larva spiny with many rows of spines or knobs (Melitæa). F upper end cell opposite origin v3.

30b (35a). Palpi smooth and abnormally long. Eyes smooth. Larva with 2 stout branched horns on the head. Antennæ equal to half the costa, club gradual.

30 (31a. 33a). H not tailed. F apex produced, termen rounded, but apex broadly truncate and termen concave just below.

*Hypolimnas, Hüb.* The Eggflies. (Plate 23).

31a (30. 33a). H shortly tailed at v4 and lobed at v1. F apex sharply truncate and falcate.

31 (32). Cells closed.

*Yoma, Doh.* The Lurcher. (Plate 23).

32 (31). Cells open. F termen highly concave in middle and convex between vs 1 and 2.

*Rhinopalpa, Fd.* The Wizard. (Plate 23).

33a (30-31a). H long tail at v1 only.

33 (34). Cells open. F upper apex of cell right angled (acute in rest of group). F apex broadly truncate and concave below ; convex above tornus.

*Doleschallia, Fd.* The Autumn Leaf (Plate 23.)

34 (33). Cells closed. F. apex sharp pointed, termen highly convex opposite v2.

*Kallima, Bdv.* The Oakleafs. (Plate 23).

35a (30b). Palpi not abnormally long and usually more or less hairy.

35b (47). Claws normal and with appendages.

35c (41a). F lower dcv, if present, ends well beyond origin v3. Larva with no horns on the head.

35d (37a). F ends vs 6, 7, 8, 9 in a straight line.

35 (36). Eyes smooth. Palpi smooth. Cells open. Antennæ equal to half costa, club gradual or sharply spatulate.

*Precis, Hüb.* The Pansies. (Plate 24). (= *Junonia, Hüb*).

36 (35). Eyes hairy. Palpi more or less hairy. Cells closed. Antennæ longer than half costa, club gradual, stout.

*Vanessa*, F. The Tortoise Shells, etc. (Plate 24). (= *Pyrameis, Eugonia, Hüb* : *Aglais, Dal* : *Euvanessa, Scud* : *Grapta, Kir* : *Polygonia, Kaniska, M*).

37a (35d) F ends vs 6, 7, 8, 9 not in line, 9 well back.

37b (39a). Eyes hairy. Antennæ equal to half costa, club stout, gradual. Cell F closed, H open.

37 (38). Palpi hairy.

*Araschnia, Hüb.* The Mongol. (Plate 24).

38 (37). Palpi smooth.

*Symbrenthia, Hüb.* The Jesters. (Plate 24).

39a (37b). Eyes smooth. Antennæ equal to or longer than costa, club abruptly spatulate. Palpi hairy.

39 (40). H cell closed. F upper end cell acute or right angled, opposite beyond origin v3 ; v10 ex 7 or cell. Larva spiny.

*Argynnis, F.* The Fritillaries. (Plate 24). (= *Acidalia, Brenthis, Dryas, Hüb* : *Boloria, Rathora, M*).

40 (39). H cell open. F upper end cell right angled or obtuse, opposite origin v3 ; v10 ex 7. Larva with humps.

*Melitæa.* F. The Small Fritillaries. (Plate 24). (= *Cinclidia, Lemonias, Hüb* : *Mellicta, Bill*).

41a (35c). F lower dcv ends before, at or only just beyond the origin of v3.

41b (46). Eyes smooth. Palpi with long fine hairs at the sides.

41c (44a). F v10 ex 7, v9 ends on costa and v8 behind a line joining the vs 6 and 7. Larva head hornless.

**F. Nymphalidæ.—Key to genera—(*contd.*)**

41 (42a). H cell open. F origin v10 well beyond origin v7, v8 very short. Antennæ equal to half costa, club absent.
*Cupha, Hüb.* The Rustic. (Plate 25).
42a (41). H cell closed. F origin v10 just beyond origin v7. Antennæ equal to half costa, club moderate.
42 (43). H no spur from the angle of v4.
*Atella, Db.* The Leopards (Plate 25).
43 (42). H with a spur from the angle of v4 towards v5.
*Issoria, Hub.* The Vagrant. (Plate 25).
44a (41c). F v10 ex cell, v9 ends on apex behind a line joining the ends of vs 6, 7, 8. H with a spur or fold from the angle of v4 towards v5. H cell open. Larva with or without horns.
44 (45). F lower dcv, ends at or just beyond the origin of v3. Antennæ longer than half the costa, club gradual.
*Cynthia, F.* The Cruiser. (Plate 25).
45 (44). F lower dcv ends before the origin of v3. Antennæ equal to half the costa, slender and clubless.
*Cirrochroa, Db.* The Yeomen. (Plate 25). (= *Ducapa, M.*)
46 (41b). Eyes hairy. Palpi smooth. H with fold in the wing from the angle of v4 towards v5. Cells closed. F v10 ex cell ; v9 ends at apex behind the line joining the ends of 6, 7, 8. Antennæ equal to half the costa, club gradual.
*Terinos, Bdv.* The Assyrian. (Plate 25.)
47 (34b). Claws very long and without appendages. Eyes smooth. Palpi white with long thin black hairs. Antennæ equal to half the costa, no club. Cells closed. F v10 ex 7, from well beyond end cell. Larva with 2 fine horns.
*Cethosia, F.* The Lacewings. (Plate 25).
49a (1b). F v1 swollen. Larva spiny with 2 thin horns on the head. Eyes smooth. Palpi splender, smooth. Antennæ equal to half the costa. Cells closed.
48b (50). Posterior tibiæ and tarsi with rows of spines.
48 (49). Antennæ club sharply spatulate. Apex F not truncate.
*Byblia, Hüb.* The Joker. (Plate 25).
49 (48). Antennæ slender clubless. Apex F truncate.
*Ergolis, Bdv.* The Castors. (Plate 25).
50 (48b). Posterior tibiæ and tarsi without rows of spines. Antennæ slender and clubless. Apex F truncate.
*Laringa, M.* The Dandies. (Plate 25). (= *Eurytela, Auct*).
51a (1a). Hindwings not channelled to receive the abdomen. Antennæ hardly as long as half the costa. Palpi sparsely hairy. Eyes smooth. Wings sparsely scaled.
51 (52). Antennæ club gradual. H v7 ex 6.
*Pareba, Db.* The Yellow Coster. (Plate 25). (= *Acræa, Auct*)
52 (51). Antennæ club short, abrupt. H v7 ex cell.
*Telchinia, Hüb.* The Tawny Coster. (Plate 25).

## KEY TO SPECIES

**F1. Charaxes.—The Rajahs. (Plate 17.)**

1a (7). Above tawny or chestnut. ♂ more or less toothed and ♀ tailed at v4.
1 (2a). Uph margin broadly pale greenish white, bearing a central series of black rings. Bases chestnut brown, outer half of F dark brown, bearing 2 rows of crescentic white markings.
α. Paler and uph pale margin very broad.
*durnfordi nicholi, GrS.* (95–115). The Chestnut Rajah. Assam—Dawnas. VR.
β. Darker. Uph pale margin narrow.
*durnfordi durnfordi, Dist.* Tavoy—S. Burma. VR.
2a (1). Uph margin not broadly pale.
2b (6). Unf costa not silver white at base.
2 (3a). ♂ upf border broad black, never with tawny spots at the apex ; ♀ with broad white discal band. Below purple tawny.

**F1. Charaxes.—The Rajahs.** (Plate 17).—(*contd.*)

*α*. Upf black border immaculate, border broad, equal to one-third of the wing at the dorsum ; ♂ never with pale discal band, basal area uniform tawny with only a black bar at end cell. ♀ white discal band immaculate, reaches costa. ♂ with a tail at v4 H.

*polyxena psaphon, Wd.* (90–112). The Tawny Rajah. Ceylon. R. (=*serendiba, M*).

*β*. As last, black border narrower. In DSF ♂ some tawny markings appear on the border upf towards tornus.

**polyxena imna, But.* (90–100). S. India—Orissa. NR.

*γ*. ♂ upf black border with tawny markings from dorsum to v2 or 3 ; uniform tawny with a black discal line and bar at end cell. ♀ discal band yellowish white and on inner side of border there are some pale tawny spots inwardly bordered by a lunular line ; pale discal band not quite to costa and always with 2 black spots in middle in 5 and 6. ♂ only toothed H.

*polyxena hemana, But.* (85–100). Mussoorie—Kumaon R. (=*bernardus, Koll*).

*δ*. As last, but very variable ; ♂ with several well marked varieties. ♀ discal band white and pale spots on the border mostly white. Typical ♂ with no pale band upf and uph white dots in centre of black spots along border.

*polyxena hierax, Fd.* (80–100). Sikkim—N. Burma. C. (= *watti, But : rossi, Fr*).

♂ *v. corax, Fd* No pale band : white spots uph on inner edge of the black spots. (= *harpax, Fd*).

♂ *v. hindia, But.* Upf pale discal band ; base fulvous and margin spotted.

♂ *v. hipponax, Fd.* Upf pale band ; base fulvous to dark, margin not spotted (= *jalinder, But*).

♂ *v. pleistoanax, Fd.* Upf pale band ; base dark, margin white spotted and uph with the white discal band from F continued to v3 or 4 ( = *khasianus, khimalara, But : naganum, Tyt*).

*η*. ♂ upf with no pale discal band ; discal line usually absent ; very like *corax*. Below darker and more variegated.

**polyxena agna, M.* (80–100). Karens—S. Burma. Andamans. NR.

3a (2). ♂ upf black border narrow, bearing tawny spots reaching to the apex and inwardly bordered by a lunular dark line. ♀ never with a pale discal band.

3 (4a). Upf apical spots not above v6. Below purple tawny.

*aristogiton, Fd.* (70–95). The Scarce Tawny Rajah. Sikkim—Burma. R. ( = *adamsoni, desa, M*).

4a (3). Upf tawny apical spots into 6. Below ochreous.

4 (5). Below more or less uniform and markings regular ; unf black bar mid cell macular ; unh dark discal line beyond cell more or less straight, except just beyond end cell. In WSF central band darker.

*marmax, Wd.* (90–120). The Yellow Rajah. Kumaon—Burma. R. (=*lunuwara, But*).

5 (4). Below markings prominent and irregular central band much darker. Unf all cell-bars entire ; unh dark discal line very irregular and broken, highly concave in 6.

*kahruba, M.* (90–120). The Variegated Rajah. Kumaon—Burma. R.

6 (2b). Unf with a silver white bar at the base of the costa. Above much as No 3. Below tawny.

*distanti, Hon.* (90–120). The Silver-edged Rajah. Karens—S. Burma. VR.

7 (1a). Above dark brown with a yellow or whitish discal band. H long equal tails at vs 2 and 4.

*α*. Above pale band narrow and dark yellow.

*fabius cerynthus, Fruh.* (70–80). The Black Rajah. Ceylon. NR.

*β*. Above pale discal band wide, dark in WSF, pale in DSF.

**fabius fabius, F.* S. India—Kangra—Sikkim. NR.

*γ*. Above pale discal band wide and sulphur yellow ; H spotting on termen wider.

*fabius sulphureus, Roth.* Assam—Burma. R. (=*raidhaka, Khé Phil.*)

**F2. Eriboea.—The Nawabs.** (Plate 17.)

1a (4a). Above dark brown with a broad pale discal band, which does not reach the dorsum H. Uph termen with small white spots on the outer edge of the broad dark border.

**F2. Eriboea.—The Nawabs. (Plate 17).**—*(contd.)*

1 (2a). Unh dark basal band passes through the outer half of the cell. Above discal band white, broadly blue edged.

α. Upf discal band continued evenly to v5, with 2 adjacent spots beyond in 5 and 6.

**schreiberi wardi*, *M.* (90–100). The Blue Nawab. S. India. VR.

β. Upf discal band tapers at the upper end and just reaches 4 ; white spot in 5 much nearer apex and with an apical dot in 6.

*schreiberi assamensis*, *Roth.* Assam—N. Burma. VR.

γ. Upf as last, but discal band not into 4, detached spot in 5 very small and spot in 6 absent.

*schreiberi tisamenus*, *Fruh.* Karens—S. Burma. Andamans. VR.

2a (1). Unh dark basal band passes through inner half of cell. Above discal band not blue edged.

2 (3). Above discal band pale yellow, width varies greatly with the season ; races only very slightly differentiated.

α. Small, band broad.

*athamas madeus*, *Roth.* (60–75). The Common Nawab. Ceylon. C.

β. Larger, usually 2 pale sub-apical spots upf.

*athamas agrarius Swin.* S. India. C.

γ. Large and very variable.

**athamas athamas*, *Dr.* Kulu—N. Burma. C. (= *bharata*, *Fd : hamasta*, *M.*)

δ. Smaller and darker.

*athamas samatha*, *M.* Karens—S. Burma. C.

η. Much larger and very dark.

*athamas andamanicus*, *Fruh.* Andamans. C.

3 (2). Above discal band pale greenish white. Three seasonal forms as in last and width band varies very considerably with the season.

*arja*, *Fd.* (75–85). The Pallid Nawab. Sikkim—Burma. NR. ( = *vernus*, *Roth : roeberi*, *Fruh.*)

4a (1a). Above pale yellow or greenish yellow, base H never dark ; F with broad black apex.

4b (11). Unh dark discal band through basal half of cell meeting post-discal band at tornus.

4c (7a). Unf curved dark band from base through end cell to sub-marginal lunular band. Upf single pale spot on black apex.

4 (5a). Upf black margin not decreasing towards tornus.

*moori sandakanus*, Fruh. (80–85). The Malayan Nawab. Sikkim—Burma. VR. (= *marginalis*, *Roth.*)

5a (4). Upf black margin decreasing markedly in width towards tornus.

5 (6). Unh pale area covers more than half wing.

*jalysus ephebus*, *Fr.* (75–85). The Yellow Nawab. Karens—S. Burma. R.

6 (5). Unh pale area covers less than half wing.

*hebe chersonesus*, *Fruh.* (75–85). Mergui—Victoria Point. VR.

7a (4c). Unf broad bar end cell extending to base v2 ; sub-marginal band continuous, not lunular and nearer cell.

7b (9a). Unf costa dark chocolate brown ; upf single row pale spots on margin.

7 (8). Upf and Unf no broad bar from end cell towards discal band. Uph sub-marginal dark band bearing pale spots along the outer edge and blueish lunules along the inner edge.

α. Smaller and paler.

*dolon dolon*, *Wd.* (80–90). The Stately Nawab. Kulu—Kumaon. R.

β. Upf pale spots smaller and shorter.

*dolon centralis*, *Roth.* (85–95). Nepal, Sikkim, Bhutan. R.

γ. Upf spots larger than in α. Uph sub-marginal band narrow and blue lunules small.

* *dolon magniplaga*, *Fruh.* (95–105). Assam—N. Burma. R.

δ. Uph more deeply scalloped and uph blue sub-marginal lunules more prominent.

*dolon grandis*, *Roth.* (95–110). Shan States—Dawnas. R.

8 (7). Upf and unf broad dark bar from lower end cell along 3 to the discal band, enclosing a large pale spot beyond end cell ; spots on margin increase in size to tornus. Uph with a post discal dark band.

**F2. Eriboea.—The Nawabs. (Plate 17).—(*contd.*)**

α. Larger. Usually a postdiscal pale spot in 7 upf. Uph sub-terminal narrow dark bars in spaces up to 6.

* *narcœa aborica, Evans* (70-75). The China Nawab. Abor Valley. R.

β. Smaller Upf no spot in 7. Uph sub-terminal dark bars obsolete above 3.

*narcœa lissainei, Tyt.* (70-75). Naga Hills. R.

9a (7b). Unf costa white and upf with sub-marginal as well as postdiscal row spots. Uph band as in No. 7. Up and unf bar from lower end cell towards discal band as in No. 8, but much shorter.

9 (10). Upf 2 pale spots end cell; dark margin becoming obsolete at tornus.

*nepenthes, Gr S.* (80). The Shan Nawab. Shan States. VR.

10 (9). Upf single pale spot end cell and 2 spots beyond.

α. Large. Seasonal forms differ much in size and size of spots.

*eudamippus eudamippus, Db.* (100-120). The Great Nawab. Kumaon—Assam. NR.

β. Upf cell all black or very nearly so.

* *eudamippus nigrobasalis, Lathy.* N. Burma. NR.

γ. As α, but smaller. Uph no blue border to band and outer white spots larger.

*eudamippus jamblichus, Fruh.* Karens—S. Burma. R.

11 (4b). Below no dark bands; large spots end cells, base 2 F and mid costa H; sub-marginal row reddish spots preceded by a blue line and on H followed by a greenish yellow line as well as a terminal blue and greenish yellow line. Above broad black apex bearing one or two pale spots and on H sub-terminal blueish, white centred, line.

* *delphis, Db.* (95-100). The Jewelled Nawab. Assam—Burma. NR.

**F3. Prothoe.—The Begums. (Plate 17).**

1 (2). Above pale yellow, broad black apex and margins. Below variegated red and black. F lower dcv evenly curved.

* *calydonia belisama, Crow.* (110-120). The Glorious Begum. Karens—S. Burma. VR.

2 (1). Above dark brown with a blue band F. Below variegated dark brown and whitish; H with broad greenish marginal lunules. F lower dcv highly concave at lower end.

α. Upf blue band very broad and not marked with white; complete series terminal blue spots, upper 2 being white.

*franckii regalis, But.* (70-80). The Blue Begum. Manipur, Upper Assam. VR.

β. Upf blue band narrow and centrally with white splashes; white marginal spots only in 5, 7 and 8.

* *franckii angelica, But.* Karens—S. Burma. R. (=*unifomis, But*).

**F4. Helcyra.—The White Emperor. (Plate 18).**

Above glazed white; upf black spots in cell and 1, broad black apex with 2 white spots; uph with a few irregular black discal spots. Below only a thin discal line of black lunules.

* *hemina, Hew.* (65-75). The White Emperor. Sikkim—Burma. R (=*masinia, Fr.*).

**F5. Dilipa.—The Golden Emperor. (Plate 18).**

Above dark brown, ♂ with golden bronzy, ♀ with white, central and discal spots F and whole disc H; upf white apical dots.

* *morgiana, Wd.* (70-80). The Golden Emperor. Kashmir—Shan States. R.

**F6. Eulaceura.—The Elegant Emperors. (Plate 18).**

1 (2). Above transparent pale brown, with dark brown costa F and large spot in 2 as well as margins and discal band H.

*manipuriensis, Tyt.* (75-80). Tytler's Emperor. Manipur. VR.

2 (1). Above dark brown with a continuous white discal band, extending on F from dorsum to 3. Below as in last, glazed pale violet brown with an ocellus in 2 F and H.

* *osteria kumana, Fruh.* (65-70). The Elegant Emperor. S. Burma. R.

**F7. Apatura.—The Emperors. (Plate 18).**

1a (7a). Unf no row of minute sub-apical white dots in 5, 6 and 8.
1b (4a). Unf no black spots in cell.
1 (2a). Above tawny with black apical markings upf. Below as *sordida*.
*cooperi, Tytler.* (60–70). Cooper's Emperor. N Shan States. R.
2a (1). Above dark brown or greenish brown.
2 (3). Upf single discal pale band, macular in ♂, continuous in ♀, in addition to the white apical spots. Above dark brown, no pale band H. Below ocellus in 2 F and H fulvous ringed; dark discal line white edged at upper end.
α. Upf discal band white Uph ocellus in 2 prominent. Below pale brown.
*sordida sordida, M.* (60–70). The Sordid Emperor. Sikkim—N. Burma. R. (= *phœacia, Hew.*).
β. Upf discal band yellow tinted. Uph ocellus in 2 absent Below pale greenish brown.
*sordida naga, Tyt.* Nagas. R.
3 (2). Upf 2 pale discal bands in addition to the apical spots. Unh dark discal line pale edged throughout. Above dark greenish brown; ♂ upf markings tawny and inner band crosses cell; ♀ markings white or yellowish white, inner band not crossing cell.
α. Upf outer discal band continuous. Uph mostly tawny; unh complete row postdiscal ocelli.
*ulupi ulupi, Doh.* (65–70). The Tawny Emperor. Upper Assam. VR.
β. Upf outer discal band broken at v4. Uph ♂ only tawny in 5 and 6; ♀ postdiscal spots well defined in 5 and 6. Below pale greenish white.
*ulupi florenciæ, Tyt.* Nagas. R.
4a (1b). Unf with black spots in cell.
4 (5a). Upf 2 discal bands; no sub-marginal spots F or H. Above dark brown and tawny, shot blue in ♂. Below pale tawny, prominent pale discal band unh, no sub-marginal dark band.
*ilia here, Fd.* (70–80). The Tawny Purple Emperor. Shan States. VR.
5a (4). Upf single white discal band in addition to the apical spots, nearly always sub-marginal pale spots H and often on F Below bluish white, prominent ferruginous discal and terminal band F and H, which on H meet at apex and tornus.
5 (6). Upf no white streak in cell from base. ♂ above shot brilliant blue.
α. Very large. Blue gloss duller; white markings broad and diffused; upf discal band to v11. Unh ocellus in 2 absent. Uph sub-marginal white markings very large.
*ambica chitralensis, Evans.* (75-90). The Indian Purple Emperor. Chitral—Kashmir. NR
β. Smaller and all markings more sharply defined. Variable and liable to aberrations.
**ambica ambica, Koll.* (65–75). Kashmir—Dawnas. NR. (= *zanoa, Hew.*: *namouna, Db.*: *bhavana, M.*: *garlanda, Fr.*).
6 (5). Upf with white streak in cell from base, sub-marginal spots prominent. ♂ very obscurely blue shot. Uph with white discal band from mid costa to base 1. Body prominently white banded. Very like a *Pantoporia*. (F. 25).
*chevana, M.* (75–80). The Sergeant Emperor. Sikkim—N. Burma. R.
7a (1). Unf prominent small sub-apical white dots in 5, 6 and 8. F end cell opposite origin v3. Club antennæ narrow. Unf prominent spots in cell.
7 (8). Above dark ochreous brown; uph with a straight yellow band; upf discal band of yellow spots, apical spots continued to 3 and a prominent black spot in 2. Eyes hairy.
*parvata, M.* (50–60). The Brown Prince. Sikkim—Assam. R.
8 (7). Above ♂ velvet black, unmarked except for white apical dots. ♀ ochreous brown with a paler discal band, which on H is always irregular.
α. ♂ upf with 3 apical dots.
*parisatis camiba, M.* (45–50). The Black Prince. Ceylon. NR.
β. As last, rather larger. ♀ paler and with pale bands prominent.
*parisatis atacinus, Fruh.* S. India. NR.
γ. ♂ upf single apical dot. ♀ much darker.
**parisatis parisatis, Wd.* Kumaon—Burma. NR.

**F13. Sasakia.—The Empress. (Plate 18).**

Above black, outer half with prominent pale streaks ; upf narrow red basal streak in cell, which unf is much wider ; unh some basal red markings below costa.

**funebris*, *Leech*. (125-130). The Empress. Nagas. VR.

**F14. Callaga. The Freaks. (Plate 21).**

α. Only fore part of thorax above orange. Unh dull ochreoust.

*buddha buddha*, *M*. (90-105). The Freak. Murree—Kumaon. VR.

β. Darker. Unh pale brown. F more elongated.

*buddha gautama*, *M*. Sikkim. VR.

γ. Above all pale markings very reduced, sharply defined and clear, not diffused as usual.

*buddha aborica*, *Tyt*. Abor Valley. VR.

δ. All thorax above orange. Dark with the pale markings reduced. Unh pale slate.

**buddha brahma*, *But*. Assam—N. Burma. R.

η. All thorax orange above. Uph tornus broadly orange.

*buddha sudassana*, *Melvill*. Shan States—Karens. VR.

**F15. Penthema.—The Kaisers. (Plate 21).**

1 (2a). Upf dark brown with pale yellow spots ; large basal streaks in 2 and 3. Uph cell all yellow ; sub-marginal and discal spots small, preceded by streaks.

α. Below reddish brown. DSF with apex produced.

* *lisarda lisarda*, *Db*. (123-135). The Yellow Kaiser. Sikkim—Manipur. R. (= *euphrone*, *Wd*.).

β. Below dull brown.

*lisarda mihintala*, *Fruh*. Chin Hills. R.

2a (1). Upf black with a blue sheen and all spots bluish ; basal streaks in 2 and 3 replaced by spots ; all markings smaller. Uph sub-marginal spots shaped like arrow-heads.

2 (3). Uph cell with yellow streaks followed by postcellular streaks, separate from discal spots. Upf long streak in 1.

*darlisa*, *M*. (125-135). The Blue Kaiser. Shan States—S. Burma. R.

3 (2). Uph cell all black.

α. Upf long streak in 1. Uph postcellular streaks conjoined to discal spots.

*binghami yoma*, *Ellis*. (125-135). The Black Kaiser. Pegu Yoma. VR.

β. Upf no streak in 1. Uph no postcellular streaks.

*binghami binghami*, *WM*. Dawnas. VR.

γ. Upf no streak in 1. Uph postcellular streaks conjoined to discal spots.

*binghami merguia Evans*. Mergui. VR.

**F16. Dichorragia. The Constable. (Plate 19).**

Dark green with small whitish spots F and very prominent zigzag sub-marginal line single in ♂, double in ♀.

* *nesimachus*, *Bdv*. (65-85). The Constable. Kulu—Burma. NR.

**F17. Stibochiona.—The Popinjay. (Plate 19).**

♂ above velvet black, ♀ dark green ; upf white spotted and with a dull blue sub-marginal line ; uph prominent row sub-marginal black spots, inwardly blue (♀ green) bordered and outwardly white.

α. Uph width of white edging narrower than width of black spots ; wider in DSF.

*nicea nicea*, *Gray*. (60-80). The Popinjay. Kulu—N. Burma. NR. (= *viridicans*, *Fr*.).

β. Uph width of white edging twice as wide as the black spots.

* *nicea subucula*, *Fruh*. Karens—S. Burma. NR.

**F8. Herona.—The Pasha. (Plate 18).**

Above dark brown with 2 yellow or white discal bands F and H and a basal streak in 1 F. Unf conspicuous white streak in outer half of 5 to termen.

α. Above bands tawny, very wide and confluent.

***marathus marathus**, *Db.* (70–90). The Pasha. Sikkim—Shan States. NR.

β. Above bands tawny and narrow; discal bands H and outer band F macular.

*marathus angustata*, *M.* Karens—S. Burma. R.

γ. As last but bands in ♂ whitish and in ♀ white.

*marathus andamana*, *M.* Andamans. NR. (= *seneca*, *Stg.*).

**F9. Sephisa.—The Courtiers. (Plate 18).**

1 (2). Above dark brown with 2 tawny bands F; H tawny with black veins and a dark postdiscal band. In ♀ upf the apical spots are whitish.

*dichroa*, *Koll.* (60–75). The Western Courtier. Chitral—Kumaon. NR.

2 (1). ♂ above outer discal band and apical and sub-marginal spots white; typical ♀ mostly blue; 2nd form ♀ spots as ♂, but all white except for a yellow spot in cell and on H the tawny colour is replaced by white; 3rd form ♀ as first but with white apex upf.

***chandra**, *M.* (75–90). The Eastern Courtier. Sikkim—Karens. NR.; ♀ VR. (= *djalia*, *vera*, *Fr.*).

♀ *v. albina*, *Evans.* VR. (= *atiya*, *Fr.*).

♀ *v. chandrana*, *Evans.* R.

**F10. Euripus.—The Courtesans. (Plate 18).**

1 (2). Unh with red basal markings. ♂ H red sub-marginal spots in 1a to 3.

α. Darker. H vs broader black and black discal band continued in ♂ to costa, also traceable in ♀; F discal band narrow.

*consimilis meridionalis*, *WM.* (60–85). The Painted Courtesan. S. India. R.

β. Pale markings broader. Uph black discal band only traceable in ♂. Unf dark discal band prominently broader at lower end.

*consimilis consimilis*, *Wd.* Dun—Dawnas. R. (= *hallirothius*, *Wd.*: *torsa*, *RhéPhil*: *amala*, *diocletiana*, *eurinus*, *gudila*, *sunta*, *triquilla*, *Fr.*).

2 (1). Unh no red basal markings. ♂ black with pale spots as in No. 1. ♀ in several forms; typical form with a broad white band upf and uph all white except for a narrow sub-marginal brown band.

***halitherses**, *Db. and Hew.* (65–85). The Courtesan. Sikkim—Burma. NR. (=*gulussa*, *neda*, *pademmoides*, *Fr.*).

♀ *v. isa*, *M.* As typical form, outer half uph dark brown. NR. (= *haliartus*, *Fd.*).

***♀ *v. nyctelius***, *Db.* Upf dark brown with apex broadly suffused bluish; uph all dark brown. NR. (= *gyrtona*, *Fr.*).

♀ *v. cinnamoneus*, *WM.* As last, but uph outwardly with white streaks. R.

♀ *v. alcathœoides*, *DeN.* As *nyctelius*, but upf all dark brown. VR.

**F11. Diagora.—The Sirens. (Plate 18).**

1 (2). Upf black bar mid cell; unh dorsum not yellow.

α. Paler, white markings wider.

*persimilis zella*, *But.* (65–75). The Siren. Simla—Kumaon. R.

β. Darker, white markings narrower. Apex F more produced.

***persimilis persimilis**, *Wd.* Orissa. Sikkim—S. Shan States. R.

2 (1). Upf no black bar in cell. Unh dorsum yellowish. Development of black markings very variable.

*nicévillei*, *M.* (75). The Scarce Siren. Dalhousie—Mussoorie. VR.

*vi*, *Druce*: *menna*, *Auct.*).

**F12. Hestina.—The Circe. (Plate 18).**

Upf with broad black veins and spotted borders. Uph veins and border broad bright chestnut.

***nama**, *Db.* (95–105). The Circe. Mussoorie.—Burma. NR.

**F18. Euthalia—The Barons, Counts, etc. (Plates 19 and 20).**—(*contd.*)

β. Larger. ♂ uph blue margin absent or narrow and broken. ♀ very variable, portion between discal bands upf may be entirely filled in whitish or may be as in last.

* *julii adima, M.* (70–85). Khasi Hills. C. (= *khasiana, Swin*).

γ. Paler and blue border uph in ♂ broader. Upf dark bands closer and in ♀ often with pale brown large spots in cell and beyond. ♀ as variable as last but smaller.

*julii sedeva, M.* (65–80). Sylhet, Cachar. Manipur and N. Burma. NR.

δ. As last, but blue border uph in ♂ still broader, reaches nearly to inner discal band. Above more uniform. ♀ as last, but dark bands H closer together. Unh ♂ and ♀ green or bluish over the whole wing or nearly so.

* *julii xiphiones, But.* (65–80). Karens—S. Burma. NR. (*parvata, M.*)

7 (6). Above discal bands conspicuously lunulated. ♂ rich vinaceous brown, no blue border H. ♀ pale brown, paler between the dark discal bands, often whitish on F especially at upper end. Below ♂ yellowish brown ; ♀ yellow, H more or less bluish.

α. Larger.

*jahnu jahnu, M.* (65-80). The Plain Earl. Sikkim—N. Burma. NR. (= *sananda, M.*).

β. Smaller and wings broader.

*jahnu jahnita, Evans.* (60–75). Karens—S. Burma. NR.

8a (5b). Palpi 3rd joint gradual. Upf basal markings never wide. Unh no or only traces of black spots at bases of 1, 2 and 3. F vs never anastomosed in ♂ and only in ♀ of Nos. 8, 9 and 10.

8b (14a). Up or unf never with 2 detached apical white spots on either side of v7, just behind origin v8, unless forming part of the pale band in the ♀. Upf basal markings in 1 consist of a well defined ring under the origin of v2, reaching mid 1 (in Nos. 8 and 10 usually a small ring or dot below) as well as a dark dot at the extreme base.

8c (10a). Unf at base 1 always a ring or round spot under origin v2 with usually a 2nd below it.

8 (9). Apex F pointed ; H tornus in ♂ produced and termen convex. ♂ dark brown with broad bluish grey margin uph and discal band upf, which is very wide at its lower end ; a whitish spot base 3 upf. ♂ paler brown with the usual 2 dark discal lines, as in Nos. 6 and 7, area between much paler especially at upper end F ; band pushed in at base 3 corresponding to the white spot in the ♂. Below yellow and dorsal area H greenish. ♂ uph a dark brand of modified scales at bases 6 and 7

α. ♂ small and pale ; brown costal area more extensive ; below band obscure especially in DSF. ♀ pale discal band less developed.

*kesava arhat, Fruh.* (50–80). The Powdered Baron. Sikkim. NR.

β. ♂ larger, darker greenish. ♀ whitish discal band more developed especially in WSF. Below darker.

**kesava kesava, M.* (55–80). Assam—N. Burma. NR.

γ. ♂ inner side of discal band sinuous. ♀ whitish discal band very prominent, broader and edges more sinuous.

**kesava discispilota, M.* (50–70). Bhamo—S. Burma. NR. (= *rangoonensis, Swin*).

9 (8). Apex F highly falcate and in ♂ tornus produced, termen being concave before tornus. Above ashy grey, more or less suffused greenish. ♀ with curved row small white spots beyond cell from 3 to costa.

α. Larger and more uniform. ♂ no white costal patch, but a prominent white spot base 3. ♀ upf spots rounded.

*anosia saitaphernes, Fruh.* (70–85). The Grey Baron. Sikkim. R.

β. Smaller, darker and more marmorated. ♂ upf with a white costal patch beyond cell, no spot base 3. ♀ upf spots pointed.

**anosia anosia, M.* (65-80). Assam—Burma. R.

10a (6c). Unf at base 1 no markings or only a single spot or dash under origin v2 and only very rarely a spot at the extreme base.

10 (11a). Upf cilia white at apex, which is produced, not pointed ; H termen evenly convex, tornus not produced. ♂ above very dark brown, with blue margin uph, extending to v3 F. ♀ above rather pale brown, inclined broad dark

**F18. Euthalia.—The Barons, Counts, etc. (Plates 19 and 20).**

1a (27a). Unh base with 2 spectacle marks in cell, outer one extending to base 5, small ring base 6 and a larger on base 7 ; these markings variable and may be obscure or absent.

1b (18a). Unf cell entirely open.

1c (4a). H termen straight to just above v3, where it is angled, giving the wing a squared appearance. F vs 11 and 12 anastomosed, 11 and 10 touch 10 and 9 ; 9 from mid 7. F prominently falcate. Uph ♂ a black brand at bases of 6 and 7.

1d (3). Unf post discal line prominent and not parallel to termen, much nearer termen at apex than at tornus.

1 (2). Unf postdiscal line quite straight, ♂ uph with a very broad lavender grey margin extending to v5 F ; upf large dark greenish spots in cell and beyond. ♀ pale brown ; upf a prominent straight black band from termen at end of v7 to outer third of dorsum, continued on H behind end cell ; upf apex greenish and with prominent elongated white spots in 5 and 6, smaller spot beyond in 6, minute spots in 3 and 4 and spot in 2. Below yellowish, margins not paler.

* *cocytus, satrapaces, Hew.* (65–80). The Lavender Count. Manipur—S. Burma. NR.

2 (1). Unf postdiscal line sinuous. ♂ above nearly black with a pale blue border F and H ; unf margin bluish ; unh all dark brown. ♀ above pale brown ; upf large dusky white spots in 2 and 3 and elongated spots in 5 and 6, all bordered pale dusky bluish.

*godarti asoka, Fd.* (70–80). The Malay Count. Mergui. VR.

3 (1d). Unf postdiscal line waved and parallel to termen. Sexes alike. Uph broad pale margin to v6 F. Below margins prominently paler

α. Small ; borders above very pale grey. Below clouded brown.

*lepidea miyana, Fruh.* (65–75). The Grey Count. N. Kanara, Orissa. R.

β. Larger ; borders above pale grey.

* *lepidea lepidea, But.* (70–80). Kumaon—Assam. NR. (= *cognata, M : adustata, Fr.*).

γ. Rather smaller ; borders darker grey. Below more uniform, reddish brown. ♀ upf pale brown spots beyond cell.

*lepidea sthavara, Fruh.* (65–75). N. Burma—Dawnas and Tavoy. NR.

δ. Borders above pale blue.

*lepidea andersoni, M.* (70–80). The Blue Count. Tavoy—S. Burma. NR.

4a (c). H termen not angled at v3.

4 (5a). Palpi 3rd joint very long and needle like. Above rather pale brown with 2 dark, highly zigzag, discal lines filled in between with white on F. Unf outer half bluish white.

*pelea, F.* (70–80). The Malay Viscount. Mergui. VR.

5a (4). Palpi not long and needle like.

5b (8a). Palpi 3rd joint sharply attenuate. H termen evenly convex and wing symmetrical about a central axis from base to mid termen. Upf basal markings in 1 very wide and the ring under origin of v2 reaches v1. F venation as in last group, but origin v9 usually nearer base. Unh with black spots usually at bases 1, 2 and 3.

5 (6a). ♂ ♀ above with a broad white discal band F and H, outwardly bordered by conical black spots, which on H are surmounted by blue spots. Below pale green.

* *cibaritis, Hew* (75–85). The Andaman Viscount. Andamans. NR. (= *vinaya, Fr.*).

6a (5). Above no continuous white band F and H ; 2 dark bands parallel to one another and to the termen ; these bands may be filled in between with pale colouring on F and H may be obscured by a pale blue margin in the ♂.

6 (7). Above dark bands not conspicuously lunulated, composed more of diffuse spots.

α. ♀ uph blue margin uph to outer discal band and reaching v6. ♀ rather pale brown with whitish spots upf at the upper end of each discal band in 6. Unh ♂ tornal half green, ♀ all bluish except apex.

*julii appiades, Men.* (65–80). The Common Earl. Kumaon—Sikkim. C, = *virescens, Fr.*).

**F18. Euthalia—The Barons, Counts, etc. (Plates 19 and 20).—(*contd.*)**

*garuda acontius, Hew.* (65–85). Andamans. NR.

15a (14). Uph outer discal line continuous or absent, but never of well separated small spots.

15 (16). Upf white streak at termen in 7, which on unf extends into 6 and 8. ♂ above very dark brown, outer discal band broad and inclined inwards, being continued on H as the inner band. Upf beyond cell a series of double spots in 3–6, the lower one in 5 being continued as a streak so as to meet a lower spot in 6. ♀ paler and outer discal and narrower.

α. Small, pale and markings narrow.

*jama jamida, Fruh.* (55–75). The Streaked Baron Sikkim. NR.

β. Larger and darker. ♂ upf white streaks prominent above in WSF, absent in DSF.

*jama jama, Fd.* (55–85). Assam, Manipur. NR.

γ. As last, but smaller and never so dark. ♂ upf white streaks nearly or quite obsolete.

*jama verena, Fruh.* (55–80). Burma. NR.

16 (15). Upf no white streak at termen in 7. ♂ upf marked as in last, but outer discal band is parallel to margin and white streaks very prominent; uph margin broadly pale blue to v6 and termen narrowly pure white. ♀ quite different, paler brown with a broad white discal band upf from costa to termen at v1; 2 prominent apical spots.

**phemius, Db. and Hew.* (65–70). The White-edged Blue Baron. Sikkim—Burma. NR. (=*sancara, M.*).

17 (14b). Above dark green with red spots H and in cell F. ♂ upf a Y-shaped discal band of small white spots and ♀ with a large white spot before end cell as well as a macular white discal band. Uph outer row dark spots sub-marginal, not discal.

α. Upf sub-marginal band much broader. In ♂ there is a strong contrast between the dark basal and the green marginal areas. ♀ outer edges of the 2 spots in 1 and lower edge spot in 2 not to termen, in line with spot in 3.

*lubentina psittacus, Fruh.* (65–80). The Gaudy Baron. Ceylon. NR.

β. ♂ above nearly uniform dark green, but paler than other races. ♀ more brilliant pale green, upf band narrow and sharply defined.

*lubentina arasada, Fruh.* (60–80). S. India.

γ. Dark and uniform. Considerable seasonal variation.

**lubentina indica, Fruh.* Bombay—Bengal. Kangra—Burma.

18a (1b). Unf cell closed or at least with a small spur from base of v5. Mostly dark green.

18 (19a). Upf a sub-marginal row white spots; white discal band to just beyond mid-dorsum and on H to v2. Below shining pale greenish blue. F cell not fully closed. Upf and unf no basal markings in 1.

α. Above white discal band broad and all markings slightly diffused.

*franciæ franciæ, Gray.* (75–90). The French Duke. Sikkim, Nepal, Bhutan. R. (=*galava, Fr.*).

β. Above white discal band narrow and all markings sharp.

**franciæ rajah, Fd.* Assam—Karens. R. (= *attenuata, japrva, Tyt.*).

19a (18). Upf no row of sub-marginal white spots. F cell closed.

19b (26). Apex F not falcate; no red spot in cell upf. Usually prominent pale discal band upf. Upf at base 1 a ring and a dot usually under origin v2.

19c (21a). Upf white discal band vertical, reaches dorsum just beyond middle; on H discal band to v1 and outwardly bordered bright greenish blue. H cell open; F vs 11 and 12 anastomosed.

19 (20). Uph white discal band not black edged outwardly before the blue

_____ *bg.* (90–100). The Blue Duchess. Sikkim—Assam. R.

20 (19). Uph white discal band outwardly black edged.

α. Uph blue area not formed into lunules except near costa.

**durga durga, M.* (95–105). The Blue Duke. Sikkim—Abor. R.

β. Uph blue area formed into blue lunules throughout. The discal band upf and all the markings below broader

*durga splendens, Tyt.* Nagas. VR.

21a (17c). Upf white discal band, if present, directed to tornus and not extending below v2. Cell H shut; F v11 free.

**F18. Euthalia—The Barons, Counts, etc. (Plates 19 and**

brown border from apex to two-thirds along dorsum, continued on H to just beyond cell ; upf 5 dusky white spots in a curved row beyond cell.

**telchinia*, *Men.* (70-85). The Blue Baron. Sikkim—N. Burma. R. (=*aphidas*, *Hew.*).

11a (10). Upf cilia brown throughout. ♂ tornus H produced.

11b (13). Apex F sharply pointed and tornus gently concave from apex to v2.

11 (12). Above ♂ very dark brown, broad blue margin H to v6, which inwardly bears a row of black discal spots. Upf termen broadly paler beyond the discal band, which is wide and widens at lower end ; inner discal band merged into basal dark area. Below ochreous brown, H dorsal area more or less green washed ; the 2 parallel discal bands prominent, on F outer one widens to dorsum, inner one curved in at upper end ; H inner band continuous, diffuse and pale, outer one consists of very small spots ; apex unf whitish. ♀ unknown.

*mahadeva binghami*, *DeN.* (65-80). Bingham's Blue Baron. S. Burma. VR. (*zichri*, *Auct.*).

12 (11). Uph no blue border. Upf the 2 discal bands more or less separated throughout. ♂ above very dark brown, outer discal band connected in each space by a dark bar to the termen, inner band merged to dark basal area ; H outer discal band prominent, inner merged to dark basal area. Below dark ochreous brown, bands as in No. 11 and apex F whitish ; in DSF bands faint. ♀ paler, apex upf whitish, discal bands prominent, outer one lunular, but of small spots uph ; upf row of white spots beyond cell small in WSF, large in DSF from 2 or 3 to costa, as in No. 10. Below pale ochreous brown, more or less washed greenish on H.

*merta eriphyle*, *DeN.* (60-70). The White-tipped Baron. Assam—S. Burma. R. (= *apicalis*, *Auct.* : *delmana*, *Swin.* : *pseuderiphyle*, *Fr.*).

13 (11b). F apex not sharp pointed, termen slightly concave in middle only. ♂ above dull dark ochreous brown, very uniform ; outer discal band F and inner discal band H very faint. Below yellow, outwardly darker and dorsal area H paler ; inner discal bands faint ; outer discal band fairly prominent, especially at ends ; on H outer discal band of small, obscure spots. ♀ unknown.

*kanda elicius*, *DeN.* (60-70). The Yellow Baron. S. Burma. VR.

14a (8b). Up or unf always 2 detached white apical spots on either side v7 just before origin v8. Upf basal markings in 1 consist of a spot, not a ring, under origin v2 and a dash at extreme base, both may be absent. Unf spot under origin v2 may be replaced by a ring. ♂ apex F pointed and tornus H produced.

14b (17). None of the spots red.

14 (15a). Uph outer discal band of small, usually well defined and well separated, spots. ♂ with a more or less complete row of small white spots beyond cell in bases 2-6. Normal ♀ similar, but spots larger. Unf spot in 1 of outer discal band shifted in.

*α*. ♂ very dark. ♀ upf with a straight white macular discal band from costa beyond cell to v2 near termen. Upf apical spots obscure.

*garuda vasanta*, *M.* (60-75). The Baron. Ceylon. C. (=*fulica*, *Fr.*).

*β*. Very large. ♂ basal area dark ; discal spots small, or absent ; discal area dusted whitish. ♀ discal spots large, pure white, discal area beyond prominently dusted whitish.

*garuda meridionalis*, *Fruh.* (65-80). S. India—N. Kanara. C. (=*a*

*γ*. Small and pale. ♂ upf discal spots small, but those beyond end cell always present. ♀ discal spots small and dusky, spots in 2 and 3 small or absent.

*garuda anagama*, *Fruh.* (55-75). Bombay—Orissa. Kangra—Kumaon. NR.

*δ*. Darker than last and discal spots upf smaller.

*garuda suddhodana*, *Fruh.* (55-75). Bengal. Sikkim. NR.

*η*. WSF dark and spots upf complete and prominent. WSF ♀ spots as in ♂ ; DSF ♀ spots end cell very large and confluent, spots in 2 and 3 may be small or absent.

**garuda garuda*, *M.* (55-80). Assam—Burma. NR. (=*meridia*, *Swin.*).

*ζ*. Very large. ♂ dark and discal spots obscure, apical spots prominent and outer discal band wide. ♀ with complete discal band as in *α*, but more diffused and linked Y-wise to the apical spots ; discal band continued widely on H between the dark discal lines.

**F18. Euthalia.—The Barons, Counts, etc. (Plates 19 and 20).**—(*contd.*)

21 (22a). ♂ above bronzy olive green, no white discal band ; upf large dusky pale spots in 2 and 3 ; uph prominent yellow area in 6 and 7. ♀ upf with a rather narrow white discal band, spot in 4 narrow, elongate, pointed and well separated from the spots on either side.

**nara nara*, *M.* (70–95). The Bronze Duke. Sikkim—N. Burma. R. (= *anyte*, *Hew.*).

β. Above bright dark green.

*nara shania*, *Evans*. Shan States. R.

22a (21). ♂ upf with pale discal band ; ♂ ♀ with spot in 4 conjoined to spots on either side.

22 (23a). Uph ♂ ♀ continuous curved discal band from costa to v4 ; upf discal band narrow and dusky at lower end, upper spots small, that in 4 smaller than the rest. Above shining bronzy olive green.

*curvifascia*, *Tyl.* (75–95). The Naga Duke. Nagas. Manipur. VR.

23a (22). Uph discal band macular and upf spot in 4 as large as the rest ; discal band in the ♂ pale yellow, in ♀ white usually.

23 (24a). Upf discal spot in 4 so placed that its inner edge is in line with the inner edge of spot in 5 and against the middle of the spots in 3.

α. ♂ uph the discal spots extend to 1 and beyond the spots in 5 and 6 the wing is conspicuously paler, showing up the very broad postdiscal dark band.

*sahadeva sahadeva*, *M.* (80–105). The Green Duke. Sikkim—Bhutan. NR.

β. Darker. ♂ uph discal spots at most only to 2. ♀ uph usually only spots in 6 and 7 and often none at all.

**sahadeva nadaka*, *Fruh.* Assam—Manipur. NR.

γ. Smaller, paler and with a less bronzy hue. All spots smaller and paler.

*sahadeva narayana*, *Gr.S.* and *Kir.* N. Burma—N. Shan States. NR.

24a (23). Upf discal spot in 4 so placed that its inner edge is in line with the inner edge of the spot in 3 and opposite the middle of the spot in 5.

24 (25). Uph all spots well separated ; upf all spots very large and with their outer edges pointed.

*iva*, *M.* (115–125). The Grand Duke. Sikkim—Manipur. VR.

25 (24). Uph spots in 6 and 7 at least contiguous ; upf spots more or less blunt.

α. Upf no white spots in 1 ; upf discal band yellow in ♂ and white in ♀.

*patala patala*, *Koll* (85–105). The Grand Duchess. Murree—Nepal. NR. (=*doubledayi*, *Gray* : *epiona*, *M.*).

β. Upf or unf 2 small white spots in 1. Upf discal band yellow in ♂ and white in ♀, all spots elongated. Below paler and spots on H more complete.

*patala taooana*, *M.* (100–120). Manipur—Dawnas. R.

26 (17b). Apex F falcate. Upf red spot in cell. Above no white band. Upf no markings base 1. Cells shut.

α. ♂ dark, ♀ paler, olive green, basal areas darker.

*evelina evelina*, *Stoll.* (75–100). The Redspot Duke. Ceylon. R.

β. ♂ shining green ; upf with a white costal patch beyond cell ; ♀ paler, the whole discal area between the basal and dark marginal area is whitish.

**evelina laudabilis*, *Swin.* S. India. R.

γ. Above brown.

*evelina derma*, *Koll.* Assam—S. Burma. (=*eva*, *Fd.* : *vallona*, *Fr.*).

27 (1a). Unh with 2 spots in cell, which may be reddish and no markings in 5, 6 and 7.

27 (28a). Above tawny orange with black markings. Cells open.

**nais*, *Forst.* (60–70). The Baronet. Ceylon. S. India—Dun—Sikkim. NR.

28a (27). Above brown, with a white band or spots. Cells faintly closed.

28b (30). Uph white spots in 6 and 7 not conspicuously far larger than the rest. Upf and uph a complete discal band (except ♀ of No. 29 β) ending on F just beyond mid dorsum.

28 (29). Upf upper spot of discal band in exact line with rest. Uph 1 or 2 small red tornal spots.

*recta*, *DeN.* (65–85). The Redtail Marquis. Assam—Burma. R. (= *monilis*, *M.*).

29 (28). Upf upper spot of discal band shifted in. Uph no red tornal spots.

α. Below pale ochreous brown. Upf discal band decreasing slightly, but evenly, to costa. Sexes nearly alike.

**F18. Euthalia. The Barons, Counts, etc (Plates 19 and 20).**—*(contd.)*

**teuta teuta, Db. and Wd.* (65-85). The Banded Marquis. Assam—Arracan. R.

β. ♂ as last but discal band much narrower and uph postdiscal black spots usually joined to form a lunular line. ♀ very variable: upf discal spots may be small and complete, increasing in size to costa, or some or all may be absent, being sometimes replaced by black spots; uph similar, but the discal spots never below v4. Ground colour in ♀ may be pale or dark brown and the area between the 2 discal rows of spots upf may be greenish blue. Below pale lavender grey to ochreous brown.

**teuta gupta, DeN.* Dawnas—S. Burma. VR. (= *goodrichi, Dist: ira, M*).

γ. Below pale glazed violet brown. Above as *a* in both sexes, but upf in ♂ spot in 5 very small; ♀ spots at upper end of discal band very large and at dorsal end very small, spot in 1 double.

*teuta teutoides, M.* (65-90). Andamans. R.

30 (28b). Uph spots in 6 and 7 very large and contiguous. Above rather pale brown; upf with 2 discal spots in 1, one in each 2, 3 and 6; a spot in mid cell flanked white on either side. Uph small white spots in 1-5 directed to mid dorsum and not to tornus as usual.

**dunya, Db. and Hew.* (85-100). The Great Marquis. S. Burma.

**F19. Adolias.—The Archdukes. (Plate 20).**

1 (2a). Palpi below greenish brown in ♂: whitish in ♀. Antennæ black above. ♂ upf velvet black with a few whitish spots in and beyond the cell; ♀ with numerous white spots. Below indigo blue at base F; apex F and all H dark green; spots white.

*cyanipardus, But.* (110-135). The Great Archduke. Assam—Karens. R.

2a (1). Palpi below reddish brown.

2 (3). Antennæ black above. Below ♂ ferruginous brown.

α. ♂ upf practically unspotted and the blue border vestigial; uph blue border narrow and mostly purple. ♀ above spots bluish white; below ochreous brown and H hardly or not at all green washed; upf spots at bases 2 and 3 large.

*khasiana khasiana, Swin.* (80-105). The Dark Archduke. Assam. NR. (= *dolia, dirteoides, Fr*).

β. ♂ upf markings more developed, uph blue border broader and mostly blue, turning to green at the tornus. ♀ spots pale yellow upf and dark yellow uph.

**khasiana intermedia, Tyt.* Manipur. NR.

3 (2). Antennæ prominently yellow tipped above. Below ♂ pale ochreous brown. ♂ blue border upf broad and small spots in and beyond cell prominent, yellow; uph blue margin very broad, blue at upper end, green at tornus. ♀ all spots yellow; upf spots at bases 2 and 3 small.

* *dirtea jadeitina, Fruh.* (8-105). The Archduke. Manipur—Burma. NR.

**F20. Parthenos—The Clipper. (Plate 21).**

Above some shade of green with very large discal white spots F; uph on disc the veins are black and there are 2 black lines between each vein, followed by a series of sub-marginal black markings.

α. Above pale greenish grey; F white spots very large; uph sub-marginal markings consist of narrow flattened lunules.

**sylvia cyaneus, M.* (115-130). The Clipper. Ceylon. NR.

β. Above greenish golden; F spot end cell as large as spot in 3. Uph sub-marginal markings are conical spots, heads rounded.

*sylvia virens, M.* (105-125). S. India. R.

γ. Above rather pale bluish green. DSF upf with the apex whitish and the white spots more contiguous.

*sylvia gambrisius, F.* (95-110). Bengal—Burma. NR. (=*apicalis, M*).

δ. Above moss green, below paler; upf apex white tipped.

*sylviar roepstorfii, M.* (95-110). Andamans. NR.

**F21. Lebadea.– The Knight. (Plate 21).**

α. Larger, bands above broader; upf inner edge spot in 2 vertical; uph discal band fills base 3.

*martha martha, F.* (62–75). The Knight. Sikkim, Nepal, Bhutan. NR.

β. Smaller, not so bright and bands narrower; upf inner edge of spot in 2 curved; uph discal band just enters base 3 in ♂ only.

*martha ismene, Db. and Hew.* (60–70). Assam—Manipur. NR.

γ. Still smaller and bands very narrow; uph band not entering base 3 at all.

**martha attenuata, M.* (55–65). Burma. NR.

**F22. Neorealgma.—The Panther. (Plate 21).**

α. ♂ DSF tawny with 9 large black spots on the basal half and 2 lunular black bands on the outer half of the F; uph basal two-thirds tawny with black markings, outer third black with 2 rows of white spots. WSF ♂ and both ♀ ♀ with bases only tawny and the rest white.

**doubledayi doubledayi, Wd.* (80–100). The Panther. Sikkim—Chittagong, R. (= *siva, Wd: fraterna, M.*).

β. Smaller and paler, base F only tawny; H no tawny colour.

*doubledayi nonius, DeN.* (70–90). Karens. R.

**F23. Abrota.—The Sergeant-major. (Plate 21).**

♂ above tawny with dark bands; uph 4 bands of which the two central ones are well separated in the WSF and nearly united in the DSF. ♀ dark brown with dusky tawny bands; upf a streak in cell with a spot beyond; uph 2 tawny bands.

**ganga, M.* (90–70). The Sergeant-major. Sikkim, Bhutan. NR. (= *jumna, M.*).

**F24. Limenitis.—The Admirals, etc. (Plates 21 and 22).**

1a (8a). F upper end of cell about opposite origin v3. Antennæ not prominently yellow tipped. Uph discal band, if present, not strongly curved.

1b (7). F lower dcv ends about origin v3. No prominent large white spot at end cell.

1c (3a). H cell closed. Eyes smooth. Palpi smooth and white. Above ♂ no prominent pale discal band.

1 (2). Upf highly zigzagged postdiscal double line and uph inverted shaped spots. Above dark brown, paler brown discal band.

α. Above not purple glossed. Below grey.

**austenia austenia, M.* (85–90). The Grey Commodore. Assam. R.

β. Above purple glossed.

*austenia purpurascens, Tyt.* Abor Valley. VR.

2 (1). No such zigzag line. ♂ above dark brown basally and pale brown outwardly, with a dark brown straight band, tornal area H dark green. ♀ dark green with outer area white, greenish discal band F and dark band H

*danava, M.* (80–85). The Commodore. Simla—Dawnas. R.

3a (1c). H cell open. Eyes hairy. Palpi white, hairy at sides. Above with a prominent pale discal band

3 (4a). Upf the band yellow; uph white.

**zayla, Db. and Hew.* (80–85). The Bicolour Commodore Sikkim—Assam. NR.

4a (3). Upf discal band not yellow.

4 (5a). Upf discal band curved out at the upper end to the apical spots; the band green.

**daraxa, Db and Hew.* (60–70). The Green Commodore. Sikkim—Karens. NR.

5a (4). Upf discal band curved in at the upper end, well away from the apical spots; the band white or nearly so.

**F24. Limenitis. The Admirals, etc.**—(*contd.*)

5 (6). Upf discal band continuous to costa. Below mauve, apex F and tornus H chestnut ; unh spots in cell and base 7 white.

**dudu, Wd.* (75–85). The White Commodore. Sikkim—S. Shan States. R.

6 (5). Upf discal band macular at upper end ; beyond discal band there are 2 rows of black spots, separated by a fulvous line ; discal band tinted blue. Below prominent dark basal markings.

*zulema, Db.* (80–85). The Scarce White Commodore. Sikkim—N. Burma. VR.

7 (1b). F. lower dcv ends far beyond origin v3. Eyes smooth. Palpi smooth and white. Above prominent white discal band. Uph 2 rows sub-marginal black spots on a tawny area. H cell open.

α. Upf no white spot at end cell.

*procris calidrasa, M.* (60–75). The Commander. Ceylon. NR.

Upf large white spot end cell. Above discal band narrow, especially on H ; upf sub-marginal reddish brown band narrow. Below darker.

*procris undifragus, Fruh.* S. India. NR.

γ. As last, but all bands above wider. Below paler and more irrorated violet.

**procris procris, Cr.* Dun—Burma. NR. (=*chlœna, Fr* : *diluta, Ob*).

δ. Upf spot end cell very small and sometimes absent. Larger and black markings above wider.

*procris anarta, M.* Andamans. NR.

8a (1a). F. upper end cell opposite well before origin v3 ; lower dcv ends about origin v3. Cells shut. Eyes smooth. Palpi hairy, white below, black lined at sides. Upf prominent white bar mid cell and a curved white discal band on both wings ; 2 apical dots on F.

8 (9) Upf single bar in cell.

α. Above discal white band narrow, macular, width less than one-sixth wing. More or less prominent black sub-marginal spots, bordered on either side by dusky fulvous spots

*trivena ligyes, Hew.* (60–75). The Indian White Admiral. Chitral—Kashmir and Pangi. NR.

β. Above band still narrower and the fulvous spots on either side of the black submarginal spots much brighter.

*trivena hydaspes, M.* Hazara—Chilas. R.

γ. Above discal white band continuous, very wide, equal to one-third of the wing ; a narrow white sub-marginal line ; the fulvous spots hardly visible.

**trivena trivena, M.* Murree—Kumaon. C.

9 (8). Upf two bars in cell : discal band broken into well separated spots.

*elwesi, Ob.* (62). The Chinese Admiral. S. Shan States. VR.

**F25. Pantoporia.—The Sergeants. (Plate 22.)**

1a (11a). F cell shut.

1b (8a). Eyes smooth.

1 (2a). Unh 5 prominent black spots about the origin of v7. Sexes alike, markings normal, white. Upf cell streak and spot beyond end cell entire, incised once on upper side ; discal spots well separated, that in 2 large, in 3 small, in 4 a long streak under the middle of spot in 5. F lower dcv ends well beyond origin of v3.

*sulpitia adamsoni, M.* (55–75). The Spotted Sergeant. N. Burma. VR.

2a (1). Unh no prominent black spots about origin v7, but with brown streaks more or less prominent. F lower dcv ends about origin v3.

2b (6a) Sexes dissimilar. ♂ Upf discal streak obscure or very broken ; discal spots dorsum to 2 or 3 conjoined and directed to apex or costa, not mid termen as usual. F lower dcv ends at or just after origin v3.

2c (4a). F no prominent discal spot in 3 as wide as and in line with the spots in 1 and 2. ♀ with broad orange markings normally arranged.

2 (3). ♂ unf discal streak much broken. ♀ discal spots in 4, 5 and 6 form a continuous, even-edged, apical band.

α. ♂ uph postdiscal band broad orange ; apical orange markings upf and always a small discal spot in 3.

*nefte inara, Db.* (55–70). The Colour Sergeant. S. India, Orissa, Sikkim—N. Burma. NR. (=*inarina, But*).

**F28. Pantoporia.—The Sergeants. (Plate 22.)**—*(contd).*

β. Uph postdiscal band white or partly white; upf spot in 3 usually present; discal streak better defined; bands narrower.

*nefte asita, M.* Shan States—Tavoy. NR. (=*asitina, Fr.*).

γ. ♂ markings above white, not orange and no discal spot in 3 upf.

*nefte nivifera, But.* Tavoy—S. Burma. NR.

δ. ♂ uph no postdiscal band, just a brown line. ♀ markings mostly white, orange tipped towards apex upf.

*nefte rufula, DeN.* Andamans. NR.

3 (2). ♂ unf discal streak continuous, but upper edge irregular. ♀ discal spot in 4 small and against outer edge spot in 3. ♂ upf discal streak obscure ferruginous; prominent orange apical markings; uph postdiscal band obscure.

* *cama, M.* (60–75). The Orange Staff Sergeant. Mussoorie—Burma. NR.

4a (2c). F prominent discal spot in 3 upf and no apical orange markings in ♂. ♀with white or sullied brownish bands above.

4. (5). Unf discal streak twice divided by a brown line across cell; triangular spot beyond well separated, obscure in ♂, prominent in ♀, lies at the base of 5 and not of 4 as usual.

α. ♂ above darker, bands narrower, discal spot in 4 parallel to rest and not inclined as usual; spot in 2 wider than rest; cell streak obsolete except for a single pale spot; below darker. ♀ white markings broad; below rather pale ochreous brown.

*selenophora kanara, Evans.* (60–70). The Staff Sergeant. S. India. NR.

β. ♂ markings broad, reddish mark in cell prominent. White markings in ♀ often sullied more or less. Seasonal forms well marked.

*selenophora selenophora, Koll.* (55–75). Mussoorie—Burma. NR. (= *bakula, M.*).

5 (4). Unf streak in cell entire and hardly separated from the spot end cell in 4; apical white spots coalesced to a band. ♂ upf discal streak very obscure, discal band slightly curved in. ♀ markings sullied pale brown.

*zeroca, M.* (50–65). The Small Staff Sergeant. Kumaon—Burma. NR.

6a (2b). Sexes alike (except for colour in No. 6); (except ♀ of No. 6) discal spot in 2 well separated from the spot in 1, no discal spot in 3; lower part of discal band directed to mid termen; discal streak prominent. Markings white (except No. 6 ♀).

6 (7). Upf discal streak twice divided and well separated from the spot beyond. ♀ with pale brown confluent markings, very like ♀ of No. ?, but bands on H narrower than the dark brown space between. F lower dcv ends just after origin v3.

*reta moorei. Fr.* (60–70). The Malay Staff Sergeant. Assam—Mergui. VR. (=*kresna, subrata, M.*).

7 (6). Upf discal streak entire and separated from spot beyond. Below olive brown. F lower dcv ends just after origin v 3.

*kanwa phorkys, Frnh.* (60–70). The Dot-dash Sergeant. Assam—Burma. R.

8a (1b). Eyes hairy. F lower dcv ends just after origin v3. Upf always a discal spot in 3.

8 (9a). Upf discal band normal, spots in 1a-3 directed to termen and in line with spot in 4; cell streak twice divided and well separated from the spot beyond. F upper apex cell acute, upper and lower dcvs in a continuous concave line.

α. Above white bands broad and always pure white.

*opalina opalina, Koll.* (60–70). The Hill Sergeant. Kashmir—Kumaon. C.

β. Above white bands narrow and often sullied.

*opalina orientalis, El.* (55–70). Sikkim—Burma.

9a (8). Upf discal band abnormal, discal spot in 3 at base 3, centre line of spots in 2–3 pointing to the costa; spot in 2 nearer base than usual and more widely separated from spot in 1. F upper end cell right angled and lower dcv takes off from some distance along v5, not in line with upper dcv.

9 (10). Uph basal band straight, narrow and continuous; postdiscal band white. Upf discal spot in 3 minute; apical 3 spots directed to mid termen, marginal spots small and white; cell streak consists of a narrow streak and a large spot beyond in the cell, no spot beyond end cell as usual; unf end cell

**F25. Pantoporia—The Sergeants. (Plate 22.)**—*(contd.)*

marked by a white bar. Below dark brown. Sexes alike. Upf obscure bluish green spots in cell.

*abiasa clerica, But.* (60–70). The Abnormal Sergeant. S. Burma. VR.

10 (9). Uph basal band broad, curved ; spot in 7 separated from rest ; postdiscal band sullied also all marginal markings in ♂, whiter in ♀. Upf no cell streak, obscure bluish spots in cell and at base of 1 ; apical spots directed to tornus. Below pattern abnormal, white markings very broad and veins black.

α. ♂ above discal band only present ; postdiscal band H absent. ♀ prominent wide postdiscal and marginal bands F and H.

*ranga karwara, Fruh.* (60–70). The Blackvein Sergeant. S. India. R.

β. ♂ above with sullied postdiscal and marginal spots.

*ranga ranga, M.* Sikkim—Burma. R. (=*mahesa, M*).

11a (1a). F cell open ; apex cell obtuse.

11b (15). Eyes smooth.

11c (13a). Upf no discal spot in 3.

11 (12). Upf unbroken streak in cell and no spot beyond (similar to No.

*pravara acutipennis, Fruh.* (55–60). The Unbroken Sergeant. Assam–Burma. R.

12 (11). Upf streak in cell divided so as to enclose a small spot in the middle ; a triangular detached spot beyond the streak.

*larymna siamensis, Fruh.* (75–100). The Great Sergeant. Manipur—S. Burma. R.

13a (11c). Upf with a discal spot in 3.

13 (14). Upf cell streak narrow, entire, with a rounded, detached, spot beyond.

α. Uph a black spot in the centre of each white spot forming the postdiscal band.

* *asura asura, M.* (65–75). The Studded Sergeant. Kulu—Tavoy. R.

β. Uph no black spots on the postdiscal band.

*asura idita, M.* (60–70). Mergui—S. Burma. R.

14 (13). Upf cell streak divided into 4 portions. Unh prominent row of black spots on the inner edge of the postdiscal band.

* *perius, L.* (60–70). The Common Sergeant. S. India—Simla—Burma. C.

15 (11b). Eyes hairy. Upf cell streak entire and no spot beyond ; a discal spot in 3.

*jina, M.* (60–75). The Bhutan Sergeant. Sikkim, Nepal, Bhutan. VR.

**F26. Neptis.—The Sailers and Lascars. (Plate 22).**

1a (28a). F v10 ex cell.

1b (10a). Upf cell streak always divided into a basal streak and a spot beyond. Above markings white or sullied.

1c (4a). Upf discal spots in 2 and 3 in line with the discal spot in 5, which line is directed to the costa well before the apex. Uph inner discal band never to the costa.

1d (3). Unh basal white markings normal, consisting of a costal streak and a streak across base cell, which is often continued under v7.

1 (2). Uph postdiscal row of white spots prominent and separate. Below termen broadly chequered black at the ends of veins and white in the interspaces. H. v8 ends on termen and is aberrant.

α. Above markings tinged blue.

*columella nilgirica, M.* (65–70). The Short-banded Sailer. S. India. NR.

β. Above markings white.

*columella ophiana, M.* Dun—Burma. NR. (*martabana, M : alesia, Fr*).

γ. Larger. Below very dark and outer white markings much developed ; lunules beyond sub-basal band in a series of deep crescents.

*columella kankena, Evans.* (75). Nicobars. VR.

2 (1). Uph postdiscal row white spots absent or represented by a narrow continuous line. Unf usually with prominent dark chestnut discal streaks beyond the cell and unh prominent large discal black spots and a black spot in cell near base.

α. All white markings narrow. Below darker ; unh discal spot in 7.

*jumbah nalanda Fruh.* (60–70). The Chestnut-streaked Sailer. Ceylon. —NR.

**F. 26. Neptis.—The Sailers and Lascars.** (Plate 22.)—(*contd.*)

α. Large. Uph spots of postdiscal band widely separated, spaces between as wide as the spots.

*soma kallaura*, *M.* (60-70). The Sullied Sailer. S. India. R.

β. Small. Uph postdiscal spots conjoined.

*soma soma*, *M.* (50-60). Mussoorie—Burma. R. (=*adipala*, *M*: *gonotata*, *But*).

γ. Larger and darker. Unh inner discal band broad. Very like *nandina clinia*, but below dark chocolate brown and unf discal spots in 2 and 3 are rounded and further from the margin.

*soma mananda*, *M.* (55-60). Andamans R.

8a (7). Uph inner discal band always fills base 3 and extends up to base 2 or beyond. Below much brighter ochreous brown.

8 (9). Upf upper 3 spots of sub-marginal line not markedly shifted in. Unh the 2 pale sub-marginal lines, not equally prominent, the outer one obscure.

α. Above markings broad, not sullied ; upf discal spots in 2 and 3 outwardly rounded.

*nandina hampsoni*, *M.* (55). The Clear Sailer. S. India—Central Provinces. R.

β. Upf discal streak usually sullied ; discal spots in 2 and 3 outwardly square or concave.

*nandina susruta*, *M.* (45-60). Sikkim—Burma. C. (=*cacharica*, *leuconota*, *But*: *ancus*, *Swin.*).

γ. Uph postdiscal band obscure or absent. Much darker above ; inner discal band uph broad and prominent.

*nandina clinia*. *M.* Andamans. C.

9 (8). Upf upper 3 spots of sub-marginal series shifted in markedly and at right angles to costa. Uph white band broad and expanding to costa. Unh the 2 sub-marginal white lines equally prominent.

α. Large, markings wide, unsullied, but sometimes yellow tinged. Upf discal spot in 2 outwardly concave.

*yerburyi yerburyi*, *But.* (60-70). Yerbury's Sailer. Kashmir—Kumaon. NR.

β. Smaller and markings much narrower, usually slightly sullied. Upf discal spot in 2 outwardly rounded.

*yerburyi sikkima*, *Evans.* (58-60). Sikkim—Assam. NR.

γ. As last, but markings wider. Upf discal spot in 2 outwardly rounded.

*yerburyi shania*, *Evans.* (55-60). N. Burma. NR.

10a (1b). Upf cell streak and spot beyond conjoined (in No. 13 nearly as separated as in No. 8a).

10b (23a); Upf cell streak not extending into base 3 (but see No. 20a where spot in 3 lies at base 3 and touches cell streak.)

10c (17a). Unf no pale spots on costa above end cell streak internal to the upper discal spots.

10d (15a). Above markings not orange yellow and upf sub-marginal pale line always traceable.

10e (13a). Unh basal costal streak narrow and not more prominent than the streak base cell ; both prominent in No. 10 and obscure in Nos. 11 and 12.

10 (11a). Upf the usual pale line between the discal and the sub-marginal spots absent. Above all markings broad and clear.

α. Above markings very broad and white ; upf discal spot in 4 ; uph discal band reaches costa.

**sankara sankara*, *Koll* (65-75). The Broad-banded Sailer. Kashmir—Kumaon. NR. (= *amba*, *amboides*, *M*).

β. As last, but markings narrower ; spots forming discal band well separated.

*sankara quilta*, *Swin.* Sikkim—Burma. NR.

γ. Above very dark, pale markings F and postdiscal band H tinged yellow ; inner discal band H narrowing to costa and not reaching it ; upf no discal spot in 4 and uph sub-marginal pale line absent. Below very dark brown, tinged violaceous.

*sankara nar*, *DeN.* Andamans. VR.

11a (10). Upf with the usual thin pale line between the discal and sub-marginal markings, the line highly zigzag ; all markings obscure, fuliginous brown and very narrow. Uph inner discal band not to costa.

11 (12). Upf discal spot in 2 more or less quadrate ; cilia at apex prominently white. Uph inner discal band to v7 in ♂ ; postdiscal and sub-marginal

**F26. Neptis.—The Sailers and Lascars. (Plate 22.)**—*(contd.)*

β. Unh with a discal spot in 7.
*jumbah jumbah, M.* S. India—Bengal—Burma. NR.
γ. Unh no discal spot in 7.
*jumbah amorosca, Fruh.* Andamans. N.R.
δ. Upf 5 not 6 discal spots; unh termen bluish white with a black line.
*jumbah binghami, Fruh.* Nicobars. (Fruh). V.R.

3 (1d). Unh basal white streak broad, single, not entering cell or extending below v8 (also so in Nos. 13a and 15). Below very uniform dark brown.
α. Upf pale markings very narrow and bluish; discal spot in 3 reduced to a dot. Uph postdiscal spots large and with diffuse edges. Unh white submarginal band discontinuous.
*magadha khasiana, M.* (55-60). The Spotted Sailer. Bhutan—N. Burma. R.
β. Upf markings broader; uph postdiscal spots small. All markings sharp Unh white sub-marginal line continuous.
*magadha magadha, Fd.* S. Burma. R. (= *charon, But: cineracea, Gr. S.*)

4a (1c). Upf discal spots in 2 and 3 not in line with spot in 5 and the line joining 2 and 3 points to termen below apex (in No. 5 and individuals of No. 6 it points to the apex).

4 (5a). Uph discal band not to costa. Abdomen white where discal band uph meets it, as in *Pantoporia*. Below uniform dark brown.
*nata cresina Fruh.* (55). The Burmese Sailer. Karens—S. Burma. R.

5a (4). Uph white discal band to costa (or very nearly so in individuals of No. 7). Abdomen never white banded.

5b (7). H termen prominently chequered black and white and below markings more or less black edged, more especially inner discal band unh. Unf spot end cell well separated from basal streak.

5 (6). Upf apical part of discal band nearer termen, crosses base of v8 and is nearly at right angles to the costa, the costal streak as wide as the rest; discal spot end cell outwardly blunt; discal spots in 2 and 3 directed to apex; spots of upper and lower part of the discal band usually confluent. Below black edgings to markings obscure. Uph the white discal band widens towards the costa.
*mahendra, M.* (55-60). The Himalayan Sailer. Chitral—Kumaon. C.

6 (5). Upf upper part of discal band well behind base of v8 and is oblique, costal streak short and behind the spots below it; discal spot end cell outwardly sharp pointed. Uph inner discal band not widening towards costa.
α. Above white markings broad and sharp. Below rather dark ochreous and unf veins beyond cell prominently black.
*hylas varmona, M.* (50-60). The Common Sailer. Ceylon. S. India—Kumaon and Sikkim. VC. (= *eurynome, L.: leucothoe, Cr.: disrupta, kamarupa, M.: eurymene, swinhoei, But*).
β. Above markings narrow and often sullied. Below ferruginous brown, no veins blackened.
**hylas astola, M.* Kashmir—Karens (Hills). VC. (= *emodes, M*).
γ. Below bright golden ochreous, no veins blackened. Above markings broad. Very variable.
*hylas adara, M.* Assam—Burma. (Plains). VC (= *mamaja, But.: meetana, M.*).
δ. As last. Uph postdiscal band narrow and unh inner discal band more prominently black edged than usual.
*hylas andamana, M.* Andamans. C.
η. Upf spots in 2 and 3 directed to apex. All markings very broad. Below rather dark ochreous and white markings along termen broader. Unh inner discal band constricted at ends.
*hylas nicobarica, M.* Nicobars. C.

7a (5b). H termen not prominently chequered and below markings not black edged. Unf cell streak and spot beyond often conjoined; discal spots in 2 and 3 always directed to termen.

7 (8a). Uph inner discal band very narrow, does not enter base 3, or if so, there is an equivalent dark space at base 2. All markings narrow and macular usually sullied above. Below dark ochreous brown.

**F26. Neptis—The Sailers and Lascars. (Plate 22.)—(*contd.*)**

pale lines well separated. Below dark brown, pale markings all prominent and white.

*vikasi pseudovikasi, M.* (60-70). The Dingy Sailer. Kumaon—Assam. NR. (=*suavior, Fr*).

12 (11). Upf discal spot in 2 crescentic ; cilia not prominently white at apex. Uph in ♂ discal band only to v5 ; postdiscal and sub-marginal pale lines wide and close together, encircling the dark area between so as to form a row of dark spots. Below olive brown, all pale markings obscure pale brown.

*harita, M.* (55-60). The Dingiest Sailer. Bengal—Burma. NR.

13a (10a). Unh basal costal streak broad, extending to v8 only and no pale streak base cell (just as in Nos. 3 and 15).

13 (14). Above markings from white to more or less sullied, discal spots macular and well separated. Upf always prominent discal spot in 3 ; sub-marginal pale spots prominent and the highly zigzag line between them and the discal spots. Very like *nandina*, but easily separated by the basal costal markings unh.

α. Above markings broad.

*cartica cartica, M.* (55-70). The Plain Sailer. Sikkim—Assam. NR. (=*carticoides, M*).

β. Above markings narrow.

*cartica burmana, DeN* Assam—Burma. NR.

14 (13). Above markings highly sullied and diffused ; upf no discal spot in 3 and the line between the discal and sub-marginal markings not zigzag.

α. Uph inner discal band whitish, other markings pale brown ; unf sub-marginal pale line at apex not bent in parallel to apical discal spots. Below dark ochreous brown and all markings more or less white.

*anjana nashona Swin* (65-70). The Rich Sailer. Sikkim—S Shan States. R.

β. ♀ very much as in α, but unf in ♂ and ♀ the sub-marginal pale line at the apex curved in parallel to the apical discal spots. ♂ above very dark with narrow brown bands ; below very dark ferruginous ochreous, flushed violet, markings not white.

*anjana anjana, M.* Karens—S. Burma. R.

15a (10d). Above markings orange yellow and sub-marginal line upf obscure.

15 (16). Unh basal costal streak broad and no streak at base cell. Upf discal spots in 1 and 2 well separated ; unf spot in 5 small, completely detached from spot in 6 and not extending below v5. F termen excavated in middle.

α. Below markings pale clear ochreous.

*ananta ananta, M.* (55-70). The Yellow Sailer. Chamba—Kumaon. R. (= *sitis, Fr.*)

β Below dark ferruginous ochreous

*ananta ochracea, Evans.* Sikkim—Dawnas. R. (high).

γ. Above darker and all markings much darker. Below darker. H termen more crenulate.

*ananta namba, Tyt.* Manipur. Nagas. R. (low elevations).

16 (15). Unh basal costal streak narrow and with a streak base cell. Upf discal spots in 1 and 2 conjoined or very close ; apical spots coalesced and extending into 4 on both sides. F termen even, not concave in middle.

α. Below markings more or less whitish, especially the discal band H. Upf spots in 1 and 2 separated by the black vein.

*miah miah, M.* (45-60), The Small Yellow Sailer. Sikkim—Assam. NR.

β. Below markings ochreous ; marginal markings more obscure. Upf discal spots in 1 and 2 completely conjoined.

*miah nolana, Druce.* Burma. R.

17a (10c). Unf with pale costal spots above end cell streak, internal to the upper discal spots.

17 (18a). Upf discal spots complete, with a spot in 4 ; inner edge sub-marginal line highly bent in the middle.

α. Above all markings narrow, brown. Below entirely brown with prominent yellow or whitish bands.

*ebusa fuliginosa, M.* (55). The Fuliginous Sailer. Karens—S. Burma. R. (= *thamala, M*).

β. Upf apical markings whitish and below all markings whitish.

**F26. Neptis—The Sailers and Lascars. (Plate 22.)** —(*contd.*)

*ebusa ebusa, Fd.* Nicobars. VR.

18a (17). Upf no discal spot in 4 ; inner sub-marginal pale line absent.

18 (19a). Upf discal spot in 3 narrow and not to v4, immediately above and coalesced to spot in 2, not produced towards cell streak.

α. Above markings white.

*antilope melba, Evans.* (55). The Variegated Sailer. Sikkim. VR.

β. Above markings yellow.

*antilope antilope, Leech.* (60). Naga Hills. VR.

19a (18). Upf discal spot in 3 reaches v4.

19 (20a). Upf discal spot in 3 not curved in so as to meet cell streak. Above markings yellow.

*cydippe kirbariensis, Tyt.* (80). The Chinese Yellow Sailer. Naga Hills, VR.

20a (19). Upf discal spot in 3 meets cell streak, forming a hockey stick.

20b (22). Upf discal spot in 3 fills base 3.

20 (21). Above markings yellow.

*aspasia, Leech.* (85). The Great Hockeystick Sailer. Nagas. VR.

21 (20). Above markings white. Below greenish yellow.

*manasa, M.* (65). The Pale Hockeystick Sailer. Sikkim S. Shan States. VR.

22 (20b). Upf discal spot in 3 not to base 3. Below rich ochreous brown.

α. Above markings white.

*nycteus nycteus, DeN* (60). The Hockeystick Sailer. Sikkim. VR.

β. Above markings yellow.

* *nycteus phesimensis, Tyt.* Nagas. VR.

23a (10b). Upf cell streak extending into base 3.

23b (25a). Unf with pale costal spot or spots above end cell streak, internal to the apical discal spots.

23 (24). Unf these spots small and confined to costa.

α. Above markings white.

* *narayana narayana, M.* (60–70). The Broadstick Sailer. Kulu—Kumaon. R.

β. Above markings yellow.

*narayana nana, DeN.* Sikkim—Manipur. R. (= *naga, Tyt*).

24 (23). Unf these spots continued to the cell streak.

α. Large ; markings orange yellow above.

*radha radha, M.* (70–80), The Great Yellow Sailer. Kumaon—Assam. R.

β. Small ; markings pale yellow above.

*radha asterastilis, Ober.* (60–70). Momeit, N. Burma, Dawnas. VR.

25a (23b). Unf no costal spots internal to the apical discal spots.

25 (26a). Unf spot in 1 well separated from the spot in 2. Above markings broad, white to pale yellow. Below pale yellow green.

*zaida, Db. & Hew.* (65-75). The Pale Green Sailer. Murree—Dawnas. R. (= *pallens, Fr*).

26a (25). Upf lower discal spots coalesced, not even separated by veins. Above markings yellow.

26 (27). Below bands pale greyish ochreous, with a violet tint ; uph dark area between the pale bands nearly as wide or wider than the bands.

α. Above bands wide. Below paler and all markings with their edges suffused.

*viraja kanara, Evans.* (55-75). The Yellowjack Sailer. S. India—Orissa. NR.

β. Above bands narrower and below darker and all markings with sharply defined edges.

*viraja viraja, M.* Kumaon—Burma. NR.

27 (26). Below all bands ochreous. Upf cell streak never bearing a black mark on its upper edge, but instead a slender black edged, yellow bar. H. discal black band narrower below than above. Uph dark margin bears a narrow ochreous line ; black discal band further from margin. Upf outer sub-marginal yellow line always traceable, inner line comparatively broad and the inner dark line irregular.

α. Larger, paler, yellow above. Upf irregular dark line bordering the yellow discal area much more irregular in middle than elsewhere. Below markings pale ; termen not fuscous edged.

*heliodore sattanga, M.* (45–50). The Burmese Lascar. Assam—N. Burma, NR. (= *camboja, M : kuhasa, DeN*).

**F26. Neptis—The Sailers and Lascars. (Plate 22.)—(*contd.*)**

β. Smaller, darker, orange above. Upf dark line bordering yellow discal area zigzagged throughout. Below markings dark, well defined, termens narrowly fuscous.

*heliodore dorelia, But.* (40-45). S. Burma. NR.

28a (1a). F v 10 ex 7. Above markings yellow ; all small.

28b (32). Below not striated with fuscous brown lines.

28c (31). Upf lower discal spots conjoined.

28d (30). Upf 2 narrow sub-marginal pale lines ; uph narrow ochreous line on the dark margin.

28 (29). Upf the 2 narrow sub-marginal lines yellow, curved in middle. Below markings ill-defined, pale; unh at base several short brown dashes, termen ochreous, bearing 2 narrow dark lines.

* *paraka, But.* (45-50). The Perak Lascar. Assam—Burma. NR.

29 (28). Upf the 2 narrow sub-marginal pale lines greyish, not conspicuously curved in the middle. Below markings dark, sharply defined, no basal brown dashes. Unh dark discal band and dark margin bear prominent, well defined greyish ochreous lines.

γ. Upf the sub-marginal lines united.

*dindinga assamica, M.* (40-45). The Greylined Lascar. Assam—N. Burma VR.

β. Upf submarginal lines separate.

*dindinga dindinga But.* (45-50). S. Burma. VR.

30 (28d.) Upf a single ochreous sub-marginal line. This line broad, not bent in middle ; uph an ochreous line on the dark margin. Below washed pinkish ; unf veins black at apex, margin broad ochreous. Unh some dark dots at base cell ; dark discal band more heavily black edged on inner side than on outer.

*aurelia, Stg.* (25-40). The Baby Lascar. Assam—Burma. R.

31 (28c). Upf discal spots in 1 and 2 well separated. Uph postdiscal yellow band narrow and ochreous line on the dark margin.

*paona, Tyt.* (45-50). Tytler's Lascar. Naga Hills. VR.

32 (28b). Below more or less brown striated. Very pronounced seasonal variation.

α. Upf marginal lines highly zigzagged throughout.

*hordonia sinuata, M.* (45-50) The Common Lascar. Ceylon. C.

β. Upf marginal lines much less zigzagged, but often in WSF prominently so in the middle.

* *hordonia hordonia, Stoll.* S. India. Dun—Burma. C. (= *plagiosa, M*).

γ. Uph sub-basal pale band white

*hordonia cnacalis, Hew.* Andamans. C

**F. 27. Cyrestis.—The Map Butterflies. (Plate 23).**

1 (2a). F apex broadly truncate and produced below v6. Above white with narrow pale ochreous lines and a broad brown border.

α. Upf dark border rather pale brown and costa pale brown.

* *periander periander, F.* (40-50). The Little Map. Shan States. R.

β. Upf dark border much darker brown, costa whitish. Above ochreous lines broad and darker, especially at tornus H.

*periander binghami, Martin.* Dawnas—S. Burma. NR.

2a (1). F apex not truncate.

2 (3a). H apex rounded and termen F even.

α. Smaller. Typical form white, with fine lines, bases and margin not darkened.

*cocles cocles, F.* (50-60). The Marbled Map. Orissa. Sikkim—Burma. R. (= *horatius, WM & DeN*).

*v. earlei, Dist.* Bases and margin darkened, but interspersed with white patches. R.

*v. natta, Swin.* Bases and margin darkened and very slightly interspersed with white patches.

β. Large. Typical form white, bases and margin not darkened.

*cocles formosa, Fd.* (60-70). Andamans. R.

**v andamanica, WM & DeN.* Bases and margins darkened and interspersed with white. R.

**F. 27. Cyrestis—The Map Butterflies. (Plate 23.)**—*(contd).*

3a (2). Apex H and tornus F truncate.

3b (5). Above ground colour white or pale yellow.

3 (4). Upf outer thin discal line meets black border at v5 and just below v2; inner discal line has no dark patch at its upper end. Uph 3 thin basal lines parallel. Prominent ochreous area at tornus F and H and this area on F bears 2 small prominent black dots. Above ground colour white.

*nivea nivalis, Fd.* (50–60). The Straight Line Map. S. Burma. NR. (=*atosia, Swin*).

4 (3). Upf outer thin discal line runs from dorsum to v7 and inner discal line has a small dark patch at its upper end. Uph the fine basal lines irregular. Upf no prominent tornal ochreous area. Uph postdiscal dark band straight.

α. Upf apical and terminal dark area distinctly bluish grey. Ground colour never yellow.

*thyodamas indica, Evans.* (50-60). The Common Map. S. India. NR.

β. Upf apical and terminal dark areas narrower and dark brown. Above usually white in ♂ and pale yellow in ♀.

*thyodamas ganescha, Koll.* Kashmir—Kumaon. NR. (=*afghana, Mart*).

γ. Upf apical and terminal dark areas much broader and brown. Nearly always white above.

**thyodamas thyodamas, Bdv.* Sikkim—Burma. C. (=*nobilior, Mart*).

δ. Above all markings much heavier; upf 2 discal lines joined by the dark area in 4. Uph tornal orange areas much more extensive and darker.

*thyodamas andamanica, WM.* Andamans. NR.

5 (3b). Above deep rich fulvous; below yellow. Above markings much as in No. 4, but with a complete row of postdiscal lunular brown spots.

*tabula, DeN.* (55–60). Nicobars.

**F. 28. Chersonesia.—The Maplets. (Plate 23).**

1a (3). H tornus produced and termen with a short tail at v4. Above fulvous with dark brown narrow lines.

1 (2). F 6th line from base, as all the others, quite straight throughout and parallel to the rest.

**risa, Db and Hew.* (40–45). The Common Maplet. Kumaon—Burma. NR. (=*transiens, Mart*).

2 (1). F 6th line from base sinuous, much curved at upper end.

*rahria rahrioides, M.* (35-45). The Wavy Maplet. Manipur—Burma. R.

3 (1a). H tornus not produced and termen not tailed. In ♀ termen very convex. Upf 6 lines nearest base paired and filled in darker between pairs; 7th line waved as 6th in No 2.

*peraka, Dist.* (30–35). The Rounded Maplet. S. Burma. R.

**F. 29. Pseudergolis.—The Tabby. (Plate 23).**

Above golden brown; upf 4 dark lines in cell, 3 dark lines beyond and between the last two a row of black spots. Below dull brown, more or less glazed violet, especially at apex unf. Apex F truncate.

**wedah, Koll.* (55–65). The Tabby. Kulu—Burma. NR.

**F. 30. Hypolimnas.—The Eggflies. (Plate 23).**

1 (2a). Unh prominent black costal spot mid 7. ♂ above dark indigo blue prominent large discal white patch on each wing on a shot blue area. Normal ♀ tawny with white banded black apex upf.

**misippus, L.* (70–85). The Danaid Eggfly. Ceylon, India, Burma. C. (=*diocippus, Cr.*)

♀*v. alcippoides, But.* Uph white on disc. VR.

♀*v. inaria, Cr.* Upf white banded black apex absent. VR.

2a (1). Unh no prominent black costal spot mid 7.

2 (3). Unh broad white or whitish marginal band. ♂ above as No 1, but white patches suffused blue in DSF. ♀ normally with a prominent row of sub-marginal white spots and a broad white margin uph; upf in WSF 2 bluish white spots end cell; DSF with a blue shot discal band. ♂ ♀ below in WSF with a prominent white discal band on either wing.

**bolina, L.* (70–110). The Great Eggfly. Ceylon, India, Burma, Andamans. C. (=*avia, liria, F: jacintha, Drury: charybdis, But: curiosa, Swin: egna, luctuosa, ornamentalis, subviolacea, Fr*).

**F. 30. Hypolimnas—The Eggflies. (Plate 23.)—(*contd.*)**

♀*v. melita, Cr.* Upf a series of suffused, rather small, whitish spots beyond cell and a dark obscure fulvous patch near tornus; uph discal area suffused, golden tawny. S. Burma. VR.

♀*v. iphigenia, Cr.* Above postdiscal spots absent and marginal markings obsolete. Upf a row of large white discal spots beyond cell, outwardly obscurely blue edged; prominent tawny tornal area. Uph large white discal area, inwardly obscurely blue edged and outwardly very obscurely tawny edged. S. Burma. VR.

3 (2). Unh no broad pale marginal band. ♂ above dark olive brown, glossed blue on costa and termen F; post-discal white spots F and H; upf ill-defined whitish streaks in 4, 5 and 6 beyond cell. ♀ as ♂ but all upf except basal third shot rich satiny blue.

*antilope anomala, Wall.* (85-95). The Malayan Eggfly. Nicobars. NR.

**F. 31. Yoma—The Lurcher. (Plate 23)**

Above dark brown with a broad yellow discal band across both wings. Below DSF leaf-like; WSF with a very pale yellow discal band as above.

**sabina vasuki, Doh.* (75-85). The Lurcher. Burma. Andamans. NR. (=*atomaria, sabulosa, Fr*).

**F. 32. Rhinopalpa.—The Wizard. (Plate 23).**

♂ above rich tawny fulvous with a broad black border F and the upper part H; lower part H with black sub-marginal spots. Below rich dark brown with very narrow silver lines and fulvous markings and a complete row of sub-marginal spots F and H. ♀ paler, bases darker ochreous brown and a broad yellow discal band.

**polynice birmana, Fruh.* (70-80). The Wizard. Assam—Burma. R. (=*fulva, Fd*).

**F. 33. Doleschallia.—The Autumn Leaf. (Plate 23).**

Above rich tawny fulvous with a very broad black apex bearing a tawny band from the costa beyond the cell. Below leaf-like.

α. F termen between vs 7-9 convex or straight. Upf yellow spot in 4 parallel to termen, narrow, diffuse, just extending into 3 and 5 and sometimes very narrowly joined to the costal band along v5.

*bisaltide ceylonica, Fruh.* (75-85). The Autumn Leaf. Ceylon. R.

β. F termen as in α. Upf yellow spot in 4 smaller, confined to 4 and not joined to costal band. Paler.

*bisaltide malabarica, Fruh.* S. India. R. (=*indica, M*).

γ. F. termen concave between vs 7-9. Upf discal spot in 4 variable, but better formed and more quadrate.

*bisaltide continentalis, Fruh.* Sikkim—Burma. NR. (=*polibete, Auct: argyrioides, basalis, cingara, nimbata, Fr.*)

δ. F termen between vs 7-9 straight. Upf 3 white apical spots instead of 2. In ♀ costal band broadly joined to spot in 4, which extends into 5.

**bisaltide merguiana, Evans.* Mergui. NR. (=*pratipa, Auct*).

η. F termen between vs 7-9 convex. Above as γ but black apex extends broadly along 3 to base 3. F tornus much produced and termen more concave in middle.

*bisaltide andamana, Fruh.* Andamans, Nicobars. NR.

**F. 34. Kallima.—The Oakleafs. (Plate 23).**

1a (4). Upf dark basal area extends beyond end cell. Base F and all some shade of blue or green.

1 (2-3). Upf discal band blue or bluish white, a dark bar defining end cell, another just beyond in 4 and a bar from v3-v1.

α. Darker, In WSF ♂ lower part of the band darker than the apical part, *philarchus philarchus, Wd.* (85-110). The Blue Oakleaf. Ceylon. NR. (=*mackwoodi, M.*).

β. Paler. Band more uniformly coloured ♀ much greener.

*philarchus horsfieldii, Koll.* (85-110). S. India. R. (=*doubledayi, wardi, M.*).

**F. 34. Kallima—The Oakleafs. (Plate 23.)**—(*contd*).

2 (1-3). Above band orange.

α. DSF very pale and the sub-marginal dark lines very prominent on H.

*inachus huegeli, Koll.* (85-110). The Orange Oakleaf. Kashmir—Kumaon. NR. (= *alkinsoni, boisduvali, buckleyi, huttoni, ramsayi, M.*).

β. DSF not much paler than the WSF, which is darker.

*inachus inachus, Bdv.* Sikkim—Assam. NR. (=*foliacea, marmorata, siccifolia, uredinophora, Fr.*).

γ. Blue areas with a rich steely blue sheen and the orange band much more richly coloured.

*inachus limborgi, M.* Burma. NR.

3 (1-2). Above discal band white.

**albofasciata, M.* (85-110). The White Oakleaf. Andamans. NR.

4 (1a). Upf dark basal area not extending beyond end cell, which is defined by a black bar, but no black markings beyond. Band bluish white. Upf black apex broader than the dark basal area. Uph dark ochreous brown.

*alompra, M.* (95-110). The Scarce Blue Oakleaf. Sikkim—Dawnas. R. (= *knyvetti, DeN.*).

**F. 35. Precis.—The Pansies. (Plate 24).**

1a (6). Upf a black spot or variegated ocellus in 2.

1 (2a). Uph a black spot in 2. Above bright yellow ; ♂ prominent blue patch uph about base 6.

α. Smaller.

*hierta hierta F.* (45-55). The Yellow Pansy. Ceylon. India. Andamans. VC.

β. Larger and brighter.

**hierta magna, Evans.* (50-60). Sikkim—Burma. C.

2a (1). Uph a variegated ocellus in 2.

2 (3a-5). Upf and uph a variegated ocellus in 2 and 4. Above bright shining blue, which in uph extends nearly to base along costa.

α. Smaller. Below paler.

**orithya swinhœi, But.* (40-55). The Blue Pansy. Ceylon. India. VC. (= *patenas, Fr.*).

β. Larger, below darker.

*orithya ocyale, Hub.* (45-60). Sikkim—Burma. VC. (= *isocratia, Hub : phycites, Fr.*).

3a (2. 5). Uph single large variegated ocellus. Upf 2 variegated ocelli.

3 (4). Above dark brown with a number of lemon yellow spots F.

α. Small and dark.

*lemonias vaisya, Fruh.* (45-55). The Lemon Pansy. Ceylon—S. and Central India. C.

β. WSF as last. DSF very variable, often rosy below.

*lemonias persicaria, Fruh.* Kashmir—Kumaon. C. (= *aenaria, Fr.*).

γ. Larger.

**lemonias lemonias, L.* (50-60). Sikkim—Burma. C. (= *aonis, Cr.*).

4(3). Above rich fulvous. Uph ocellus very large, from v4 to above v7. DSF leaf-like below and wings much produced. WSF ocellated below and wings rounded.

**almana almana, L.* (60-65). The Peacock Pansy. Ceylon, India, Burma. C. (= *asterie, L.*).

β. Much smaller.

*almana nicobariensis, Fd.* (50). Nicobars. R.

5 (2-3a). Upf and uph complete row of ocelli, of which those in 2 and 4 are variegated. Above grey, with dark brown lines.

**atlites, L.* (55-65). The Grey Pansy. Ceylon, India, Burma, Andamans. NR. (= *laomedia, L.*).

6 (1a). Above no prominent ocelli, pale to dark brown, with darker brown bands.

α. Small and dark.

*iphita pluviatalis, Fruh.* (55-65). The Chocolate Soldier. Ceylon,—S. and Central India, Maldives. C.

β. Small and pale.

*iphita siccata, Stich.* (55-65). Kashmir—Kumaon. C. (= *hopfferi, Mosch.*).

γ. Usually larger and darker. DSF may be very variegated.

*iphita iphita, Cr.* (55-80). Sikkim—Burma. VC.

**F. 36. Vanessa.—The Tortoiseshells, etc. (Plate 24).**

1a (3a). H termen not produced and angled at v4. Upf black apex, bearing 3 conjoined apical and 4 sub-marginal white spots.

1 (2). Above pinkish red, base golden brown. Upf 3 central black spots on the red area.

*cardui*, *L.* (55–70). The Painted Lady. Ceylon, India, Burma, Andamans, Nicobars. VC.

2 (1). Above dark brown, uph red band and black spotted margin. Upf basal dark area up to the 3 central black spots.

α. Dark. Uph termen black. Upf 2 lower central black spots confluent; red discal band deep crimson and only a very thin red line behind the black spot in cell.

*indica nubicola*, *Fruh.* (55–65). The Indian Red Admiral. Ceylon. NR.

β. Transition between last and next.

*indica pholæ*, *Fruh.* (55–65). S. India. NR.

γ. Dark brown areas above with a golden gloss. Upf discal band much wider and paler; lower of the 2 central spots detached. Uph termen red. Unf bluish spots end cell large and proimnent.

**indica indica*, *Herbst.* Kashmir—N. Burma. C.

3a (1a). H termen produced at v4.

3b (7a). F dorsum markedly concave before tornus, which is produced, rendering termen highly concave. H tailed at v4 and tornus produced; apex prominently truncate.

3 (4a). Above very dark indigo blue, with a broad postdiscal blue band F and H.

α. Upf discal band joined to the blue spot at end cell and not or only obscurely continued to the white apical dots. Uph the black spots on the outer edge of the discal band large and merged to the black marginal area.

*canace haronica*, *M.* (60–70). The Blue Admiral. Ceylon. NR.

β. Upf discal band not joined to the blue spot at end cell, but continued to the white apical dots. Black spots on the outer edge of the discal band clear and separated from the black margin. Small and discal band greenish blue.

*canace viridis*, *Evans.* (60–70). S. India. NR.

γ. As last, but the band is blue and the spots on the border H are minute.

**canace himalaya*, *Evans.* (60–70). Chitral—Kumaon. NR.

δ. As last, but larger and the blue band wider.

*canace canace*, *L.* (65–75). Sikkim—N. Burma.

4a (3). Above tawny fulvous with black spots.

4b (6). Uph broad fuscous border, bearing small yellow, well separated, spots.

4 (5). Uph no black spot base 3. Unh dark line defining the outer pale area above the silver dash end cell nearly straight and continued across to the dark line below the silver dash. Above dull fulvous red, black spots small and often obsolete, margins broadly dull fuscous, inwardly bearing obscure yellow spots F. Below slatey brown.

*egea undina*, *Groum.* (45–55). The Dull Comma. Baluchistan Chitral. NR.

5 (4). Uph black spot base 3. Unh the upper dark line irregular and curving into the upper end of the silver dash at end cell. Above bright fulvous red, paler in DSF. Below slate.

*interposita*, *Stg.* (50–60). The Kashmir Comma. Chitral, Kashmir, Ladak. NR.

6 (4b). Uph margin narrow brown, inwardly bordered by a continuous band of the ground colour, internal to which there is a narrow fuscous band.

α. Above bright fulvous red in the WSF, yellow in DSF; below slatey brown in WSF, ochreous in DSF.

**c-album cognata*, *M.* (50–60). The Himalayan Comma. Kashmir—Kumaon. NR.

β. Above darker fulvous red, more uniform and with smaller markings, fuscous margin narrow and uniform, not outwardly ashy; H post discal fuscous band ill-defined. Below slatey.

*c-album agnicula*, *M.* The Thibetan Comma. Nepal—Bhutan. R.

7a (3b). F dorsum straight. H termen never produced to the same extent, tooth at v2 projects as far as the tornus; apex not or only slightly truncate.

**F. 36. Vanessa.—The Tortoiseshells, etc. (Plate 24.)**—*(contd.)*

7b (11a). Costa F, dorsum H and palpi not bearing long erect coarse black hairs. Above tawny with black spots.

7 (8a). Upf white apical spots completely enclosed by the black apex; always black spot base 2. Uph large quadrate black spot mid costa, broadly white edged on either side.

*l-album, Esp.* (65-75). The Comma Tortoiseshell. Chitral—Kashmir. R. (=*vau-album, Den and Schiff*).

8a (7). Upf the tawny ground colour always extending up to the white apical spots; no black spot base 2 (except in No. 8). Uph basal two-thirds black and except for an area below the costa shaded golden scales; no white patches below costa.

8b (10). Uph the sub-marginal row of blue centred black spots not inwardly fuscous bordered. Wings broad and square.

8 (9). Termen F rounded at apex and only slightly produced at v6. Above very prominent yellow patches; uph black spot mid 1 extending to base 2; uph tawny postdiscal area narrow.

**ladakensis, M.* (45–55). The Ladak Tortoiseshell. Ladak—Sikkim. NR.

9 (8). Termen F concave below the apex. Upf black spot mid 1 extending to base 2.

*urticæ rizana, M.* (50-60). The Mountain Tortoiseshell. Safed Koh. Chitral—Sikkim, R.

10 (8b). Uph the sub-marginal row of blue centred black spots inwardly fuscous bordered. Wings narrow and more produced; termen F concave below apex and tornus more produced F and H.

α. Upf fuscous inner border to the sub-marginal spots no wider than the tawny area between it and the discal spots in 2 and 3.

*cashmirensis cashmirensis, Koll.* (55–65). The Indian Tortoiseshell. Safed Koh. Chitral—Kulu. C.

β. The fuscous border wider and the yellow areas more developed.

*cashmirensis aesis, Fruh.* Simla—Sikkim. C.

11a (7b). Costa F, dorsum H and palpi with long black coarse hairs, which are erect.

11b (13). Above tawny with black spots, similar in general appearance to Nos. 6-9; uph with a large black spot mid costa, as in No. 7, but tawny edged both sides or yellow outwardly.

11 (12). Mid and hind legs brown. Above darker; uph black sub-marginal band irregular, wider in middle, bearing outwardly a prominent narrow blue line.

*xanthomelas fervescens, Stich.* (60–70). The Large Tortoiseshell. Chitral—Kumaon. NR.

12 (11). Mid and hind legs black. Above paler, with yellow patches more developed. Uph sub-marginal black band narrower and of equal width throughout, the blue line absent or only represented by a few blue scales here and there; the black border with broad diffused yellow markings on either side. Below more uniform and outer half not conspicuously paler.

* *polychloros fervida, Stdfss.* (60–70). The Blackleg Large Tortoiseshell. Chitral—Murree. R.

13 (11b). Above rich dark maroon with broad pale yellow margins, internal to which there is a row of small blue spots. Upf 2 pale yellow costal spots.

*antiopa yedanula, Fruh.* (70–80). The Camberwell Beauty. Chumbi Valley. Sikkim. VR.

**F. 37. Araschnia.—The Mongol. (Plate 24).**

Above dark brown with a pale yellow discal band and sub-marginal line both completely broken in middle. Upf with 3 sub-apical yellow spots and narrow yellow lines in cell.

* *prorsoides dohertyi, M.* (50–55). The Mongol. Manipur—Nagas. R.

**F. 38. Symbrenthia.—The Jesters (Plate 24).**

Dark brown with yellow bands arranged rather as in *Neptis*.

1a (3a). Unf lower half of cell with brown markings, in particular a long bar right across cell from costa; below markings ferruginous brown rather than black.

**F. 38. Symbrenthia.—The Jesters. (Plate 24.)—(*contd.*)**

1 (2). Below a straight brown line from nearer base v1 H across cell to just before mid costa, joining a similar straight bar on F from dorsum to apex; this bar darker than the other markings.

**hippoclus khasiana*, *M.* (45-55). The Common Jester. E. Ghats—Kulu—Burma. C. (=*lucina, Cr : daruka, M.*).

2 (1). Below all markings equally dark and darker than in No 1; the dark bar across F and H not continuous · net-work of markings very intricate. Upf sub-marginal dark markings from tornus narrow and continued to the central dark markings, not confined to a dark spot in 1.

*hypatia chersonesia*, *Fruh.* (45-55.) The Intricate Jester. Mergui. VR.

3a (1a). Unf lower half of cell and a band of the ground colour H free from dark marking. Below all markings consist of black spots of an irregular shape, except for a series of blue or green sub-marginal ocelli and tornal markings H.

3b (5). Unf always a black spot base 1 under the spot in the cell near the base.

3 (4) Unf no black streak running above the costal vein from spot at extreme base cell to above the 2nd spot in the cell; also counting from the yellow centred cell spot there are 6 spots on the costa.

*α*. Above fulvous markings very broad; apical, cellular and lower discal areas often joined; H black discal band curved, often incomplete and tawny margin often reaches nearly to the apex. Below ochreous brown, dark markings reduced. Unf inside fine marginal line, there are several narrow parallel lines at apex and middle; unh postdiscal band without prominent metallic green centres and sub-marginal dark line from tornus to v4 enlarged and blue centred in 3.

*hypselis brahira*, *M.* (40-55). The Himalayan Jester. Kashmir—Kumaon. NR. (=*lilacea, Hew : asthala, sivokana, M.*)

*β*. Above fulvous markings very variable, cellular yellow area may be joined in the ♀ to the apical, but lower discal area always separate. Below variegated ochreous and whitish, markings prominent and fully developed. Unf inside fine marginal line there is an ill-formed ocellus at the apex and in the middle. Unh metallic green centres to the postdiscal band large and prominent; sub-marginal discal band from the tornus—v4 of equal width, continuous and centred metallic green.

* *hypselis cotanda*, *M.* (45-55). The Spotted Jester. Kumaon—Burma. NR. (=*sinis, DeN : assama, Fr*).

4 (3). Unf a black streak from the black spot at the extreme base cell running above cell to above the 2nd spot; also counting from above the pale centred spot in the cell there are 7 costal spots. Unh sub-marginal metallic green band from v4 to tornus sharply broken at v2, followed by a tornal metallic blue spot, broadly black edged. Above markings narrow, well separated. Upf always an ochreous line at apex. Uph no yellow sub-marginal line at tornus.

*α*. Below ochreous, uniform.

*niphanda hysudra*, *M.* (50–60). The Bluetail Jester. Kashmir—Kumaon. R.

*β*. Below pinkish. Unf central postdiscal markings centred metallic green.

*niphanda niphanda*, *M.* Sikkim—Assam. R.

5 (3b). Unf no spot base 1. Above as No. 4, but markings broader, paler in middle and darker edged. Unf no black streak at base costa as in No. 4, but a costal spot between the two basal spots making in all 9 costal spots. Below pinkish, markings broad and ochreous edged. Unf central postdiscal markings rounded as in No. 3, not elongated as in No. 4 and never metallic green. Unh green or blue postdiscal ocelli much smaller and with yellow rings; sub-marginal blue or green line from tornus to v4 continuous, but portion in 2 and 3 conical.

*silana*, *DeN.* (50–60). The Scarce Jester. Sikkim—Manipur. VR.

**F. 39. Argynnis.—The Fritillaries. (Plate 24).**

Above tawny with black spots; below usually with silver markings.

1a (8a). H precostal well curved forward. F upper apex cell opposite well beyond origin v3 · v10 ex cell.

1b (6a). Unh silver stripes, not rounded spots.

1 (2a). Unh ochreous and olive brown,

**F. 39. Argynnis.—The Fritillaries. (Plate 24.)—(*contd.*)**

α. Darker. ♂ F v2 unswollen and apex F hardly produced. ♀ with white banded dark blue apex upf.

*hyperbius taprobana, M.* (65–75). The Indian Fritillary. Ceylon. NR.

β. ♂ F v2 swollen; apex F not produced. ♀ as ♂. duller and bases darker, no blue and white apex.

*hyperbius castetsi, Ober.* (65–80). Travancore, Palni Hills. NR.

γ. ♂ as last. ♀ normal, with white banded dark blue apex upf, but much darker and duller than usual, the white band narrow and the apex only slightly produced.

*hyperbius hybrida, Evans.* Nilgiris. NR.

δ. ♂ F v2 unswollen. ♀ with white banded, dark blue apex. Apex F much produced in ♂ and ♀. termen concave in middle.

**hyperbius hyperbius, L.* (70–85). Central Provinces. Mount Abu. Chitral—N. Burma. NR. (= *niphe, L.*: *aruna, M.*).

2a (1). Unh dark green.

2b (5). Unh all markings silvery. In ♂ vs 2 and 3 inflated and distorted (v1 to a lesser extent also) and their origins pushed right back.

2 (3a). Unh basal silver stripes continued to costa; the discal silver band straight.

α. Smaller. Uph blue marginal suffusion, reduced especially in ♂.

*childreni sakontala, Koll.* (75–90). The Large Silverstripe. Chitral—Kumaon. NR.

β. Larger and more richly coloured, Uph the marginal blue suffusion broad and prominent.

*childreni childreni, Gray.* (85–100). Kumaon—N. Burma. NR. (=*binghami, Ob*).

3a (2). Unh no silver marking in 8; discal bands very sinuate.

3 (4). Unh 4 silver bands as in No. 2, excluding the marginal band.

**kamala, M.* (65–75). The Common Silverstripe. Safed Koh. Chitral—Kumaon. C. (= *cnidia, Fd*).

4 (3). Unh only 2 silver bands, one discal and one through end cell.

*maia pasargades, Fruh.* (65–75). The Western Silverstripe. Chitral—Gilgit. NR. (= *pandora, Den & Schiff*).

5 (2b). Unh only the broken discal band is silver; band through mid cell is ferruginous brown. ♂ F vs 1 and 2 only swollen.

*laodice rudra, M.* (65–75). The Eastern Silverstripe. Assam—N. Burma. NR.

6 (1b). Unh with silver spots, not stripes; dark green.

6 (7). Unh upper 3 discal spots at right angles to the costa and not in line with the 4th spot; 2 small silver spots just inside the upper two; usually 3 basal spots in line; a discal incomplete row of silver centred ferruginous spots. Unf silver spots in 5 and 6 well away from the termen. ♂ F v 2 slightly swollen.

α. Darker and more richly coloured.

* *adippe jainadeva, M.* (55–70). The Highbrown Silverspot. Safed Koh. Chitral—Kumaon. NR. (= *mohmandorum, Fr.*).

β. Much paler.

*adippe pallida, Evans.* Ladak. R.

71 (6). Unh upper 3 discal spots inclined to the costa, parallel to termen and in line with 4th spot; no spots just inside the upper two; usually only 2 basal spots, but a third minute one may be present at base cell. Unf no silver spots in 5 and 6 away from the margin, but the uppermost spots of the sub-marginal series are silver from 4 or 5 to costa. ♂ no veins swollen.

α. Large and richly coloured. Normal ♀ tawny.

*aglaia ashretha, Evans.* (60–65). The Dark-green Silverspot. S. Chitral, up to 8,000 feet. NR.

♀ *v. purpura, Evans.* Completely suffused very dark purple above. R

β. Smaller paler.

*aglaia vitatha, M.* (55–60). N. Chitral—Kashmir, over 8,000 feet. R.

8a (1a). H precostal straight and rather obscure.

8b (10a). F upper apex cell produced and well beyond opposite origin v3.

8 (9). Unh ochreous, bearing very large silver spots, in particular a very large spot end cell and one above it as well as one below; postdiscal series small, brown ringed, silver spots, much bowed out in middle. H termen angled at v4. F v10 ex cell.

**lathonia issæa, Db.* (50–60). The Queen of Spain. Safed Koh. Chitral—N. Burma. C.

**F. 40. Melitaea.—The Small Fritillaries. (Plate 24.)**—(*contd.*)

or, if so, by very large spots, much shifted in. Unh pale yellow, red bands dark, broad and very prominent; the black spots on the yellow discal band between the 2 red bands have the upper 4 spots in a straight line and the next 2 at right angles inwards.

* *didyma chitralensis, M.* (42-48)· The Redband Fritillary. Chitral. NR.

4 (3). Extremely variable. Paler and smaller; ♀ as ♂. Uph sub-marginal black spots very rarely joined to the marginal. Unf postdiscal spots nearly always continued to 1, spot in 2 being the largest of the series. Unh red bands pale and variable, all markings very irregular and the black spots in the central pale area never regular as in No. 2.

*α*. Larger, wings more elongated. Upf with pale yellow patches between each spot of the discal band. Uph nearly devoid of markings and the basal dark area only extending to just half way or less along the dorsum.

*trivia dodgsoni GrS.* (40–50). The Desert Fritillary. Baluchistan—Punjab. NR. (=*persea Koll*: *robertsi, But*).

β. Smaller and wings rounder. Upf pale yellow discal patches rarely present. Uph more or less spotted and basal dark area extending beyond half way along the dorsum.

* *trivia mixta, Evans.* (35–45). Chitral. C.

5 (2*b*). Unh with a red band at base. Upf veins more or less black.

*α*. Unh the pale central band not divided by a black line into an inner yellow and an outer whitish band; marginal band white, not reddish. Unh inner white cell spot constricted, smaller than or equal to the central white cell spot; bands dark red and broad central whitish band narrow; the broad whitish margin just inside the black terminal line bears a series of flattish conical spots. Above bright red, heavily marked; ♀ basal ⅓ wing blackened, leaving a narrow red postdiscal band, narrow yellow patches beyond the black discal line and a yellow spot mid cell.

*arcesia balba, Evans.* (35–40). The Dark Fritillary. Chitral. R.

β. Unh the central pale band broad and divided by a black line into an inner pale yellow and an outer white area; central cell spot always smaller than the inner one. Unh margin as in last, no red marginal band; bands wide, outer one consists of more or less black circled spots on a yellow band. Large. Above ♂ red with rather feebly developed markings. ♀ dark red and much as in last.

*arcesia balbita. M.* (40–45). The Kashmir Fritillary. Chitral—Kashmir. R.

γ. Above red, sparsely marked. Unh prominent reddish marginal band of the same tint as the remaining reddish bands; yellow central band inside the whitish one very broad. Small: ♀ as ♂.

*arcesia sindura, M.* (35–40). The Blackvein Fritillary. Chitral, Ladak—Kumaon. R. (*amoenula, Fd*).

δ. Above ochreous, heavily marked. Unh much as last.

* *arcesia sikkimensis, M.* (25–35). Chumbi Valley, Sikkim. NR. (=*orientalis, El*).

**F. 41. Cupha.—The Rustic. (Plate 25).**

*α*. Upf discal area reddish ochreous, not yellow; black apex devoid of yellow spots or they are vestigal; black spot in 1 not prominently larger than the spots in 2 and 3. Below markings in cells, small, black, separate and clearly defined.

*erymanthis placida, M.* (50–60). The Rustic. Ceylon. C.

β As last, but upf discal area yellow. Unf markings as in last, but unh they are obscure and pale ferruginous.

*erymanthis maja, Fruh.* S. India. NR.

γ. Upf always yellow spots on the black apex; black spot in 1 much larger than the spots in 2 and 3. Below markings in cells pale and conjoined.

* *erymanthis lotis Sulz.* (50–65). Mussoorie—Burma. C.

δ. As last, but above base F and all H much darker. Larger. Upf outer edge dark basal area defined by an inclined, not a vertical straight line in 2.

*erymanthis andamanica, M.* (55–65). Andamans.

η. Uph space between submarginal lines paler.

*erymanthis nicobarica, Fd.* Nicobars. R.

**F. 39. Argynnis.—The Fritillaries. (Plate 24.)—(*contd.*)**

9 (8). Unh dark green with silver streaks ; discal series of long silver streaks complete and no postdiscal row. F venation is variable, v10 may be ex 7 or ex cell.

α. Large and richly coloured. ♀ dark greenish with ochreous spots on H.

**clara clara, Blanch.* (50–65). The Silverstreak. Garhwal—Kumaon. R.

β. Smaller, paler ochreous, but dark markings broader. ♀ as ♂.

*clara manis, Fruh.* (45–50). Chumbi Valley. C.

10a (8b). F upper apex cell not produced, opposite origin v3. All of small size and fly at high elevations.

10b (14a). Unh a white or silver spot mid cell. F v10 ex cell or 7.

10c (13). H apex rounded. Unh markings brilliant silvery, spot end cell very long, nearly or quite reaching the postdiscal row of small spots. Apex F pointed.

10 (11a) Unh marginal silver markings long, narrow, of equal width throughout and nearly reaching postdiscal spots. All markings narrow and elongated.

*altissima, El.* (33–36). The Mountain Silverspot. Sikkim—Bhutan. R.

11a (10). Unh marginal silver markings short, not of even width, not nearly up to the postdiscal spots.

11 (12). Small. Unh marginal silver markings inwardly rounded.

*eugenia mackinnoni, DeN.* (35–40). The Brilliant Silverspot. Nila and Baspa Valleys. R.

12 (11). Large. Unh marginal silver markings conical, inwardly pointed.

* *gemmata gemmata, But.* (45–50). The Gem Sliverspet. Chumbi Valley. NR.

13 (10c). H apex pointed and costa straight. Unh markings not prominently silver and spot end cell not elongated. Apex F rather pointed.

α. Small and with small markings.

* *pales sipora, M.* (35–40). The Straightwing Silverspot. Chitral—Kumaon. NR. (= *baralacha, M*).

β. Large and pale ; markings unf much reduced.

*pales korla, Fruh.* (40–45). Kashmir—Laboul. R. (= *generator, Auct*).

γ. Small and dark with much darker and heavier markings.

*pales eupales, Fruh.* (35–40). Chumbi Valley, Sikkim. NR.

14a (10b). Unh black spot mid cell. Apex F and H rounded. F v10 always ex 7.

14 (15). Unh spot end cell and marginal spots silver. Below variegated with chestnut brown. Unh marginal spots separated by equally wide ferruginous spots at end veins.

α. Smaller. Above markings smaller and better defined.

* *jerdoni chitralensis, M.* (35–40). Jerdon's Silverspot. Chitral. R.

β. Larger. Above markings wider.

*jerdoni jerdoni, Lang.* (40–45). Kashmir. R. (= *cashmirensis, M*).

15 (14). Unh all spots white and ground colour uniform yellow ; marginal white spots continuous, only separated by veins ; row of postdiscal spots bordered by a narrow pale yellow band. Above pale bright tawny with very small markings.

*hegemone, Stg.* (38–42). The Whitespot Fritillary. Chitral—Ladak. VR.

**F. 40. Melitaea.—The Small Fritillaries. (Plate 24).**

1 2(a) Unh no yellow or red bands, dull pale ochreous brown, bands concolourous with ground, markings obscure. Above yellow ; upf discal band prominent ; uph no discal band.

*shandura, Evans.* (45–50). The Shandur Fritillary. Chitral. VR.

2a (1). Unh with yellow or red bands.

2b (5). Unh no red or yellow band at base, a series of black spots instead. Above veins not markedly black.

2 (3a). Below the bands, etc., nearly absolete. Above a somewhat fiery red with reduced markings.

*saxatilis fergana, Stg.* (45). The fiery Fritillary. Gilgit, Hunza. R.

3a (2). Unh and above strongly marked.

3 (4). Uph submarginal band joined to the marginal along the veins. ♂ above bright dark red with prominent markings ; ♀ much darker, with an additional discal band on F and all markings very broad and diffuse, leaving only a few yellow or reddish spots ; uph tornal half black and costal half red in ♀. Unf red, with few markings, postdiscal band either not continued below v4

**F. 42. Atella.—The Leopards. (Plate 25).**

Above spotted very much as in *Argynnis*, but unf a very prominent tornal spot in 1.

1 (2). F, excluding bar end cell, with 4 dark lines within cell ; markings rounded.

**phalanta, Drury*. (50–60). The Common Leopard. Ceylon, India, Burma. C.

2 (1). F, excluding bar end cell, with 5 or 6 dark lines in cell ; markings more linear and above more or less shot violet.

α. Upf apex very broadly black, width = ¼ wing.

*alcippe ceylonica, Manders*. (40–50). The Small Leopard. Ceylon. R.

β. Above veins black. Generally darker and below all markings well developed.

*alcippe mercea, Evans*. (40–50). S. India. R.

γ. Above veins not black. Upf fully spotted, postdiscal line between vs. 2–4 slender and in an even curve.

*alcippe alcippoides. M*. (35–45). Sikkim—N. Burma. NR.

δ. Upf terminal dark border not thickened at all at apex and postdiscal line zigzagged throughout ; darker, but markings more reduced and linear.

*alcippe burmana, Evans*. (45–50). Karens—S. Burma. NR.

η. Upf as γ, but all markings heavier, especially in ♀. Below markings all prominent as in β. Apex F less produced.

*alcippe andamana, Fruh*. (40–50). Andamans. NR.

ζ. Paler with reduced markings. Below with a well marked whitish transerse band.

*alcippe fraterna, M*. Nicobars. VR.

**F. 43. Issoria.—The Vagrant. (Plate 25).**

α. Much paler with paler, narrower, markings.

*sinha pallida, Evans*. (55–65). The Vagrant. Dun—Kumaon. NR.

β. Darker and more heavily marked.

* *sinha sinha, Koll*. (55–65). Bengal, Orissa, Sikkim—Burma. NR.

**F. 44. Cynthia.—The Cruiser. (Plate 25).**

α. ♂ dark fulvous. ♀ white band only shows in 5 and 6 uph ; above rather pale bluish green.

*erota asela, M*. (90–100). The Cruiser. Ceylon. NR.

β. ♂ bases dark, centre paler, yellowish. ♀ white band as in last ; above rather dark olive brown.

* *erota saloma, Swin*. (95–110). S. India. NR.

γ. Seasonal forms very sharply marked. ♀ discal band from costa to v2 uph ; bases green, marginal area H broad ochreous brown.

*erota erota, F*. (90–110). Sikkim—Burma. NR. (*circe, Fawcett : pura, Swin : auricoma, triocellata, Fr*.).

δ. As last but ♂ much paler. ♀ as DSF of last.

*erota pallida, Stg*. (90–100). Andamans. NR.

**F. 45. Cirrochroa.—The Yeomen. (Plate 25).**

1 (2a). Above dark brown with a pale yellow discal band F and H and 2 outer rows of conjoined yellow spots ; the discal band upf ends at v4 and there are 2 yellow spots beyond in 5 and 6. ♂ upf with a dull ochreous brand on either side of the basal half of vs 5 and 6.

**fasciata, Fd*. (45–55). The Branded Yeoman. Karens—S. Burma. Andamans. NR. (= *flavobrunnea. GrS*.).

2a (1). Above tawny fulvous.

2b (4a). Unf dark bar end cell double. Below white discal band broad and a distinct yellow or brown broad irregular band inside it, as well as a distinct sub-marginal zigzag yellow or brownish band.

2 (3). Uph the 3 upper black discal spots in an absolutely straight line. Unh the white discal band expands widely to costa above v6. Apex F more or less truncate and produced. ♂ uph a yellow brand along vs 5, 6 and 7, also just visible on vs 6 and 7 upf.

α. Upf black apex narrow ; in ♂ sub-marginal dark line separate below v6 ; in ♀ the black margin absorbs the sub-marginal dark line, but is quite separate from the postdiscal zigzag line. Considerable seasonal variation.

**F. 45. Cirrochroa—The Yomen. (Plate 25.)—(*contd.*)**

**aoris aoris, Db.* (80–90). The Large Yeoman. Sikkim—Assam. NR. (= *abnormis, jiraria, Swin : stramentica, Fr.*).

β. Upf black apex broad ; in ♂ the dark sub-marginal line is only separate below v4 and in ♀ the dark apex and margin absorb the whole of the postdiscal line.

*aoris olivacea, DeN.* N. Burma—Dawnas. R.

3 (2). Uph the 2nd of the 3 upper discal spots out of line. Unf white band broad and of very nearly equal width, expanding very slightly to costa above v7 ; band may be absent. Apex F only slightly produced and not truncate. ♂ uph a brand along vs 6 and 7 ; no brand upf.

α. Paler.

**tyche mithila, M.* (65–75). The Common Yeoman. Sikkim—Burma. C.

β. Darker, especially at bases above and generally below.

*tyche anjira, M.* (70–85). Andamans. NR.

4a (2b). Unf dark marking end cell single.

4b (6a). Upf post discal zigzag line always more or less separate from the black marginal area. Unf discal band narrow and expands to costa. Uph 2nd of upper 3 discal spots out of line.

4 (5). Uph costa dusky from white spot mid costa to apex. Above dark fulvous. Upf apex and margin broad black. Below pale discal band variable, may be regular and narrow, expanding to costa or may be broken into irregular spots. Upf ♂ a brand along vs 5, 6 ; none uph.

α. Darker and markings, especially at margin, heavier.

*thais lanka, M.* (60–70). The Tamil Yeoman. Ceylon. NR. (= *cognata, M.*).

β. Paler and less heavily marked.

*thais thais, F.* S. India. NR. (= *swinhoei, But : relata, M.*).

5 (4). Uph costa not dusky. Smaller and much paler above, ochreous rather than fulvous ; all markings small, but uph the narrow black discal line present and continuous. Below very pale ; discal band narrow, but never broken into spots. ♂ upf no brand ; uph brand along vs 5 and 6.

*surya, M.* (50–60.) The Little Yeoman. Dawnas—S. Burma. C.

6a (4b). Upf no trace of any sub-marginal or discal line except in space 1 ; apex and margin broad black. Unh discal band narrow.

6b (8). Above veins on disc black ; uph 2nd of upper 3 discal spots out of line. Upf no prominent pale band. Unf discal band very narrow at dorsum and expanding widely above v2.

6 (7). Apex F produced. Upf a prominent ochreous spot on the black apex. Uph discal black spots small ; margin black and the 2 sub-marginal lines narrow. No brand in ♂.

**emalea, Guer.* (70–80). The Malay Yeoman. Mergui—S. Burma. R.

7 (6). Apex F not produced ; no ochreous spot on the black apex. Uph discal black spots very large and submarginal dark lines broad. ♂ Uph obscure brand along vs 5 and 6.

*nicobarica, WM. and DeN.* (55–65). The Nicobar Yeoman. Nicobars. VR.

8 (4b). Above vs not black. Upf broad yellow discal band from mid costa to tornus, which unf is white. ♂ upf and uph brand along vs 5 and 6.

*orissa, Fd.* (60–65). The Banded Yeoman. Tavoy—S. Burma. R.

**F46. Terinos.—The Assyrian. (Plate 25).**

Above suffused rich purple ; uph terminal third rich yellow. ♂ outer half upf and apex uph with dark velvet-brown modified scales.

* *clarissa lioneli, Fruh.* (70–80). The Assyrian. S. Burma. VR.

**F47. Cethosia.—The Lacewings. (Plate 25).**

1 (2a). Unf all markings in cell right across it and beyond cell an irregular pale straight band continuous on F and H.

α. Upf discal row white horseshoes complete from 2 or 3 to 6. ♀ varies from

(65–90). The Red Lacewing. Sikkim—Burma. C.

= *taeoava, GrS.: mixta, Fr.*).

β. Upf white quadrate patch in 3 instead of a horseshoe. ♀ upf nearly black ; uph greenish white.

**F.47. Cethosia.—The Lacewings. (Plate 25)—(*contd*)**

*biblis andamana, Stich.* (85–100). Andamans. NR.

γ. As last, but smaller and upf white markings less prominent. Below bands more heavily black edged.

*biblis nicobarica, Fd.* Nicobars. NR.

2a (1). Unf one of the black bars in the cell only reaches half way across it from the costa Below no straight pale narrow band across both wings.

2b (4). Unh with a row of black spots beyond end cell on a more or less regular curve.

2 (3). Below broad ochreous sub-marginal band, as broad as the black border. Uph discal row of large black oval spots.

α. Upf no white band 3–6. ♂ above black, dusky ochreous about base below cell; lower part uph blueish white; ♀ greenish blue.

*nietneri nietneri, Fd.* (80–95). The Tamil Lacewing. Ceylon. NR.

β. Upf white band 3–6. ♂ ♀ above tawny; ♀ paler, black markings large and diffuse; unf red area replaced by dusky ochreous.

*nietneri mahratta.* (80–95). S. India. NR.

3 (2). Below sub-marginal ochreous band narrow much narrower than the black border. Upf prominent white band beyond cell. Uph discal black spots small. ♂ tawny. ♀ upf black, base below cell dusky tawny turning to blueish white; uph blueish.

* *cyane, Drury.* (85–95). The Leopard Lacewing. Orissa, Mussoorie—Burma. NR.

4 (2b). Unh row of black spots beyond cell sharply angled out in the middle. Above tawny with broad black borders and apex upf, which are practically unmarked; a cream band upf. Unh prominent white discal band, base red, ochreous between the white band and the margin.

*hypsea hypsina, Fd.* (85–95). The Malay Lacewing. S. Burma. R.

**F48. Bybila.—The Joker. (Plate 25).**

Above bright tawny, black markings in ♂, fuscous in ♀, end veins black. Unh white basal and central band, discal and marginal black band with small white spots and a row of large white spots between.

* *ilithyia, Drury.* (45–55). The Joker. Ceylon. S. India—Central Provinces. NR. (= *simplex, But*).

**F49. Ergolis.—The Castors. (Plate 25).**

1 (2). F termen deeply concave between vs 3–5. Above discal line just beyond cell single and regular, angled on F at v5.

α. Above uniform. Small. ♂ uph vs 5 and 6 shining white and discal black lines do not run through them to costa.

*ariadne minorata, M.* (45–50). The Angled Castor. Ceylon. C.

β. As last, but larger.

*ariadne indica, M.* (50–55). S India—Bengal. C.

γ. Larger and more variegated above in DSF. Above veins blacker. Uph vs 5 and 6 not conspicuously white and the discal lines run to the costa.

*ariadne pallidior, Fruh.* (55–60). Mussoorie—Burma. C.

2 (1). F termen only faintly concave between vs. 3–5. Above discal line just beyond cell double and highly irregular. Unf ♂ brand enters cell.

α. Above uniform. ♂ below upper part of disc F and H dark velvet brown, obliterating the bands. Larger, darker; richly coloured in WSF.

*merione taprobana, Wd.* (55–60). The Common Castor. Ceylon. C.

β. As last, smaller and duller.

*merione merione Cr.* (50–55). S. India—Bombay. C. (= *nicevillei, Fr*).

γ. ♂ DSF with variegated yellow bands; below upper part of disc on H not darkened and bands clear. Small.

*merione tapestrina, M.* (45–55). Central Provinces—Orissa. Kashmir—Kumaon. C.

δ. As last, but larger and DSF never much variegated.

* *merione assama, Evans.* (55–60). Sikkim—N. Burma. C.

η. Smaller. DSF variegated. Unh pale and bands faint, especially towards dorsum.

*merione pharis, Fruh.* (50–55). Karens—S. Burma. C.

**F50. Laringa.—The Dandies. (Plate 25).**

1 (2). ♂ above deep ultramarine blue, no pale band. ♀ smoky brown with paler discal band, interrupted mid F.
*castelnaui, Fd.* (50–55). The Blue Dandy. Dawnas—S. Burma. R.
2 (1). ♂ with band above. ♀ ochreous.
α. ♂ above shining dark plumbeous, paler discal band, interrupted mid F. ♀ ochreous brown, with paler discal band, all covered with small brown strigæ.
* *horsfieldii glaucescens, DeN.* (50–60). The Banded Dandy. N. Shan States—Dawnas. R.
β. ♂ above indigo blue, discal band pale blue; base and cell F and broad sub-marginal band H black. ♀ ochreous brown, with clear yellow discal band.
*horsfieldii andamanensis, DeN.* Andamans. R.

**F51. Pareba.—The Yellow Coster. (Plate 25).**

Yellow with a black border F and H bearing yellow spots; veins black. ♂ with bar end cell F. ♀ very variable, black spots in cell and on disc, which may be conjoined to a continuous band; the whole wing may be covered with black scales.
α. ♂ Small.
*vesta anomala, Koll.* (45–65). The Yellow Coster. Kulu—Kumaon. NR.
β. Larger.
* *vesta vesta, F.* (50–70). Sikkim—Assam. NR.
γ. Black border broader. Below white areas absent. ♀ with upf a sub-marginal series of short red brown arrows.
*vesta sordice, Fruh.* (50–70). Burma. R.

**F52. Telchinia.—The Tawny Coster. (Plate 25).**

Tawny with black spots. H with a black border bearing white spots.
* *violæ, Fab.* (50–65). The Tawny Coster. Ceylon. India. C.
*Notes.*—The arrangement of the *Nymphalidæ* follows generally that adopted by English authors; Fruhstorfer reverses it. A natural key appears impossible without recourse to the larvæ, which are better known in this family than in any of the others. Some authors split up the *Euthalias* into several genera, while others unite *Adolias* with *Euthalia*. Those *Neptis*, where on the forewing v10 arises from v7 instead of from the cell, are usually separated as *Rahinda*, but *heliodore* is obviously much more closely allied to *paraka*, etc., than to say *mahendra*. The same remarks apply to the separation of the last section of *Argynnis* under the name *Brenthis*

## *G. ERYCINIDÆ*

**G. Erycinidæ.—The Erycinids. Key to Genera.**

1 (2a). Palpi porrect and enormously long, like a beak or snout.
*Libythæinæ*. Single genus *Libythea, E.* The Beaks. (Plate 26).
2a (1). Palpi small, do not project beyond face.
*Riodininæ*.
2b (4a). H. precostal from origin of v8.
2 (3). H vs. 6 and 7 from upper end of cell ; 3 and 4 from lower end cell. F lower end dcv at origin v3. H not lobed. Eyes smooth.
*Zemeros, Bdv.* The Punchinello. (Plate 26.)
3 (2). H vs 6 and 7 forked after end cell ; v3 from before end cell. F end dcv after origin v3. H produced and lobed. Eyes hairy.
*Dodona, Hew.* The Punches. (Plate 26). (=*Balonca, M.*).
4a (2b). H precostal from after origin v8 ; vs 6 and 7 forked after end cell. v3 from before end cell. F end dcv after origin v3.
4b (7). H v8 long, ends beyond origin v6 ; v7 to apex.
4c (6). No ♂ brand.
4 (5). H cell long and narrow at base ; scv and mv convergent at base. Eyes hairy.
*Abisara, Fd.* The Judies. (Plate 26). (=*Sospitia, Hew. : Sosibia, Archigenes, Fr.*).
5 (4). H cell short and broad at base ; scv and mv parallel ; scv parallel to v8, sharply angled opposite precostal. Eyes smooth.
*Taxila, Db.* The Harlequins. (Plate 26).
6 (4c). ♂ F dorsum much bowed, covering a brand uph on a nacreous area below costa. ♂ ♀ dcv H at right angles to vs 4 and 6, not inclined as usual.
*Laxita, But.* The Red Harlequin.
7 (4b). H v8 very short, ends before end cell ; v7 very short also and ends long before the apex. Base cell as in No. 5. Eyes hairy.
*Stiboges, But.* The Columbine. (Plate 26).

### KEY TO SPECIES

**G 1. Libythea.—The Beaks. (Plate 26).**

1a (4). Upf prominent ochreous streak in cell from base.
1 (2a). Upf ochreous spot in 1. All ochreous markings very broad. H costa concave before apex and termen concave below apex.
*celtis, Fuess.* (45-50). The European Beak. Chitral. NR.
2a (1). Upf no ochreous spot in 1. H costa and termen straight on either side of apex.
2 (3). Upf ochreous spot beyond cell streak quadrate, separate or only joined to cell streak by a narrow neck.
α. Upf cell streak divided in 2 before end cell ; all apical spots white. Uph white quadrate spot mid costa.
*lepita lepitoides, M.* (45-50). The Common Beak. Ceylon. S. India. NR.
β. Upf cell streak not divided ; lowest apical spot ochreous. Uph rarely with white quadrate spot mid costa.
*lepita lepita, M.* Kashmir—N. Burma. C.
3 (2). Upf ochreous spot beyond cell oval, joined to spot end cell, making an even edged continuous club shaped streak.
α. Above ochreous markings F and H narrow ; upf apical spots white. Uph band not to dorsum.
*myrrha rama, M.* (45-55). The Club Beak. Ceylon. C.
β. Above ochreous markings slightly wider. Upf usually 2 apical spots white and lower 2 ochreous.
*myrrha carma*, Fruh. S. India. C.
γ. Above ochreous markings wide. Upf all apical spots yellow. Uph band to dorsum.

**G.1. Libythea—The Beaks (Plate 26.)—(*contd.*)**

**myrrha sanguinalis*, *Fruh.* Kulu—Burma. C.

4a (1a). Upf no ochreous streak from base cell.

4 (5). Upf dark brown, white spot end cell and mid 2 as well as the usual apical spots; uph narrow macular white band. In ♀ the markings above are tinged ochreous.

*narina rohini*, *Mar.* (50-55.) The Whitespotted Beak. Assam—Burma. R. (=*libera*, *DeN.*).

5 (4). Above pale blue with fuscous margins, unspotted except at apex. In typical form the fuscous margins and apex upf are broad, with the apical spots sharply marked.

*geoffroyi alompra*, *M.* (50-60). The Blue Beak. S. Burma. R.

*v. hauxwelli*, *DeN.* Upf the fuscous margin and apex narrow; apical white spots obscure, but all markings showing through from below. R.

**G.2. Zemeros.—The Punchinello. (Plate 26).**

Above purple brown with small white spots. In DSF the white apical spots are enlarged.

**flegyas indicus*, *Fruh.* (35-40). The Punchinello. Mussoorie—Burma. VC. (=*allica*, *F.*; *confucius*, *M.*).

**G.3. Dodona. The Punches. (Plate 26).**

1a (6a). Unh 2 small black spots just before the apex.

1b (5). Upf spotted, not striped.

1 (2a). Upf an ochreous bar end cell, as well as a bar in cell and beyond. No tail. Above dark brown with prominent ochreous spot on upf.

**durga*, Koll. (30-40). The Common Punch. Kashmir—Nepal. VC.

2a (1). Upf no ochreous bar end cell.

2b (4). Above dark brown; uph markings obscure.

2 (3). H not tailed. Below markings narrow; unf costal spot and white bar end cell usually separate, if joined, costal spot shifted in. Unh pale bands narrow and of equal width.

α. Smaller and paler. Uph ♂ unmarked; unh markings very obscure. ♀ below markings yellow.

*dipæa nostia*, *Fruh.* (35-40). The Lesser Punch. Murree—Kumaon. R.

β. Larger, darker. Above markings ochreous. Below markings much more developed and white.

*dipæa dipæa*, *Hew.* (40-45). Sikkim—Assam. R.

γ. As last, markings very small. Below reddish ochreous, clear white narrow markings; unh lobe divided by an ochreous line.

*dipæa dracon*, *DeN.* N. Burma. Dawnas VR.

3 (2). H tailed. Below markings broader; unf costal spot coalesced to bar end cell. Unh silver bar through mid cell and bar before apex wide, wider than the other markings.

α. Small. Upf in ♂ spots whitish.

*eugenes eugenes*, *Bates.* (35-40). The Tailed Punch. Murree—Kumaon. NR.

β. Larger and darker. ♂ upf spots ochreous and unf basal and central markings pale yellow.

*eugenes venox*, *Fruh.* (40-45). Sikkim—Assam. NR.

4 (2b.) Uph reddish ochreous in ♂, yellow in ♀, with dark bands. Upf black, bases dark ochreous brown, large reddish ochreous spots in ♂, yellow in ♀. Below ferruginous brown.

**egeon*, *Db.* (45-50). The Orange Punch. Nepal—Dawnas. R.

5 (1b). Upf striped, orange band in ♂, white in ♀; discal band from mid costa to tornus. Unf bands very obscure and highly irregular. No tail.

α. Paler. ♂ upf orange discal band very wide, wider than the black bands on either side. ♀ white band even edged to the spot in 1, which is shifted out.

*ouida phlegra*, *Fruh.* (40-55). The Mixed Punch. Mussoorie—Nepal. NR.

β. Darker. ♂ discal band narrow; ♀ irregular, spot in 1 small.

**ouida ouida*, *M.* Nepal—Dawnas. NR.

6a (1a). Unh no black spots just below apex.

6 (7). Above orange banded. Below pale yellow with narrow black bands. No tail.

**G. 3. Dodona—The Punches.** (Plate 26.)—(*contd.*)

α. Upf base dark ochreous brown.

**adonira adonira*, *Hew.* (40-50) The Striped Punch. Nepal, Sikkim. Assam. R.

β. Upf base black. Below dark bands are brown and unh with prominent silver stripes.

*adonira argentea*, *Fruh.* N. Burma. (Fruh). VR.

7 (6). Above very dark brown, with a white band across both wings ; apex F white spotted. H with long tail.

α. Above white band narrow = ⅛th wing and upf spot beyond cell small and obscure ; marginal and submarginal spots diffused.

*deodata longicaudata*, *DeN.* (40-50). The White Punch. Assam. VR.

β. WSF ♂ white band = ⅓rd wing and upf spot beyond cell and spot in 3 sharp and prominent, remaining apical spots obscure. WSF ♀ white band very broad and white spot beyond cell extending to costa ; uph base white striped. ♂ DSF bases F and H white striped. ♀ DSF almost entirely white.

**deodata deodata*, *Hew.* Shan States—S. Burma. R. (=*angela*, *GrS.* : *binghami*, *M.*).

**G. 4. Abisara.—The Judies.** (Plate 26).

1a (4a). Upf prominent broad pale band from mid costa across end cell, or just beyond, to tornus.

1 (2a). H slightly produced at v4. Above dark brown, ♂ with yellow band upf, which is white in ♀.

**fylla*, *Db.* (50-60). The Dark Judy. Mussoorie—Burma. C (=*fyllaria*, *Fr.*).

2a (1). H with long tail at v4, tipped white. Above brown, band white.

2 (3). Upf no prominent white spot at upper end of postdiscal dusky pale line ; discal band always slightly sinuous.

α. Small. Upf discal band narrow and constricted at ends.

*neophron neophronides*, *Fruh.* The Tailed Judy. Sikkim—Nepal. NR.

β. As last, but larger.

*neophron neophron*, *Hew.* (50-55). Assam—N. Burma. NR.

γ. Upf band not constricted at upper end.

*neophron gratius*, *Fruh.* Karens—S. Burma. NR. (=*chelina*, *Fr.*).

3 (2). Upf prominent white spot at upper end of postdiscal pale dusky band Very like last.

α. Small and dark. Upf bands narrow and constricted at ends.

*chela chela*, *DeN.* (45-50). The Spot Judy. Sikkim—Assam. VR.

β. Larger and paler. Upf discal band absolutely straight, expanding to costa and spreading slightly along costa, edges pale yellow, especially at costa ; meets postdiscal band at v1. Uph marginal markings small and discal line evenly zig-zagged throughout.

**chela kalawna*, *Evans.* (50-55). Kalaw, S. Shan States. VR.

4a (1a). Upf pale band, if present, well beyond end cell.

4 (5a). H with a long tail at v4, tipped white.

α. Upf and Uph a narrow white discal band ; upf dusky pale postdiscal line meets discal band at v1. Above bright maroon.

*savitri attenuata*, *Tyl.* (50). The Malay Tailed Judy. Manipur. VR.

β. Above dark ferruginous brown ; upf 2 pale dusky parallel bands. Below bright ferruginous.

*savitri savitri*, *Fd.* (50-55). VR.

5a (4). H may be angled or produced at v4, but never with a white tipped tail.

5b (8). Uph at most a single pale brown discal band. Above purple brown or maroon. Uph discal and postdiscal bands separate throughout.

5 (6a). Upf the discal and postdiscal bands divergent to costa, never parallel.

α. Wsf ♂ very uniform above, dark and brilliantly purple shot ; discal band upf nearly straight. DSF smaller and only slightly different. ♀ band pale brown throughout.

*echerius prunosa*, *M.* (42-50). The Plum Judy. Ceylon—Palnis. C. (= *fraterna*, *M.*).

β. Smaller and paler, less brilliantly shot. DSF sharply marked and ♂ above outwardly paler ; discal band upf more angled. ♀ often with upper part of the discal band white upf.

**G. 4. Abisara.—The Judies. (Plate 26.)—(*contd.*)**

*echerius suffusa*, *M.* (40-50). Kanara—Himalayas. C.

γ. Unf discal band always white at upper end and angled in middle. ♀ upf discal band always white at upper end in WSF. Very variable and seasonal forms sharply marked as in last.

*echerius angulata*, *M.* (40-45). Assam—Karens. C. (= *jhana*, *Fr.*).

δ. As last but discal band upf is usually white at the upper end. Darker.

*echerius abnormis*, *M.* (40-50). Dawnas—S. Burma. C.

η. Much larger. ♂ upf and unf discal band never white, very broad unf. ♀ upf bands very broadly white at upper end and highly angled.

*echerius bifasciata*, *M.* (50-55). Andamans and Nicobars. NR.

6a (5). Upf discal and post discal bands parallel, never angled, though may be evenly curved. Unh discal band very even.

6 (7). ♂ above bands visible. ♀ unf bands separate throughout.

α. Larger. ♂ upf bands diffuse and not paler at upper end. ♀ upf bands broad, diffuse and white.

**kausumbi paionea*, *Fruh.* (42-46). The Straight Plum Judy. Manipur—Tavoy. R.

β. Smaller. ♂ upf bands prominently paler and wider at upper end. ♀ bands whiter.

*kausambi kausambi*, *Fd.* (42-46). Mergui—S. Burma. R.

7 (6). ♂ above very dark rich purple brown, unmarked ; Unf bands narrow, plumbeous. ♀ upf a sharply defined white pre-apical patch uniting the bands at their upper end.

*kausambioides*, *DeN.* (40-45). The Malayan Plum Judy. Mergui—S. Burma. R.

8 (5b). Above ochreous red ; F and H with inwardly black edged narrow, macular, discal bands and subterminal white line. Uph no black spots at apex as usual.

*burnii*, *DeN.* (40-45). Burn's Judy. N. Burma. VR.

**G5. Taxila.—The Harlequins. (Plate 26).**

1 (2). Unf discal band of inwardly black edged metallic blue spots in a regular line. Unh postdiscal band of similar spots regular and prominent. ♀ upf apical white patch crossed by ochreous veins.

*thuisto sawaja*, *Fruh.* (35-45). The Lesser Harlequin. Karens—S. Burma. NR.

2 (1). Unf spot in 3 of discal band pushed out. Unh postdiscal spots obscure. ♀ upf white apical patch diffuse and not crossed by ochreous veins.

**haquinus fasciata*, *M.* (45-55). The Harlequin. Assam—Burma. NR. (= *moulmeinus*, *Stg.*).

**G.6. Laxita.—The Red Harlequin.**

♂ above dark brown, outer ⅓ F and apex H red ; upf large white patch mid dorsum. ♀ upf outer ⅓ rosy red. Below rosy red with irregular metallic blue and black markings ; bases yellow ; apex F yellowish in ♂, rosy in ♀.

*telesia boulleti*, *Fruh.* (45-48). The Red Harlequin. Mergui. VR.

**G.7. Stiboges.—The Columbine. (Plate 26).**

Above transparent white, with white spotted dark brown border. Apex F pointed in ♂, very rounded in ♀.

**nymphidia*, *But.* (33-45). The Columbine. Bhutan—Burma. VR.

**H. Lycænidæ.—The Blues. Key to Genera.**

1a (5a). H v3 abnormally short=¼ length of v1 F and only extends half way along v7 H ; traces of pcv present. Antennæ club gradual, cylindrical. Eyes and palpi smooth. F vs 5 and 6 close and 7 and 6 from a point. H tornus rounded, no lobe or tail ; termen may be produced at v4.

*Poritiinæ*. The Gems.

1 (2a). F vs and 9 absent ; 11 and 12 touch. ♂ uph tuft over brand in cell against scv just before middle and a 2nd tuft near base.

*Cyaniroides*. *DeN*. The Emerald.

2a (1). F v8 or both 8 and 9 present ; 11 and 12 anastomosed.

2b (4). F v9 absent.

2 (3). ♂ uph brand above v7 covered by an erectile tuft of yellow hairs ; also a recumbent tuft of black hairs along the dorsum from near the base.

*Poritia*, *M*. The Gems (Plate 26.)

3 (2). ♂ uph first brand and tuft as in last ; a small obscure brand at end cell uph above origin v4, overlying which there is an insignificant tuft of recumbent dark hairs.

*Simiskina*, *Dist*. The Brilliants. (Plate 26). (= *Massaga*, *Doh*.).

4 (2b). F v9 present. No brand or tuft in the Indian form.

*Deramas*, *Dist*. The Bluejohn. (Plate 26). (= *Zarona*, *DeN*.).

5a (1a). H v8 normal, nearly or quite equal to v1 F ; no signs of pcv.

5b (8). Legs abnormal. Antennæ club gradual and cylindrical. Eyes smooth ; palpi smooth and very long, third joint as long as second. F vs 11 and 12 separate ; 7 and 6 forked ; 5 mid 4-6 ; 9 present and 8 absent. H tornus rounded, no tail or lobe ; termen may be produced at v4.

*Gerydinæ*. The Brownies.

5c (7). Legs very long, tarsi abnormal.

5 (6). Legs, first joint of tarsi elongated, compressed and flattened. ♂ upf v4 thickened at base (except one species) ; sub-anal abdominal tufts and clasps of ♂ very long and thin.

*Gerydus*, *Bdv*. The Brownies. (Plate 26). (= *Archæogerydus*, *Fr*.).

6 (5). Legs, 1st joint of tarsi elongated, but cylindrical.

*Allotinus*, *Fd*. The Darkies. (Plate 26). (= *Paragerydus*, *Dist*.).

7 (5c). Legs short, tarsi normal, but tibiæ outwardly incrassate.

*Logania*, *Dist*. The Mottles. (Plate 26). (= *Malais*, *Doh*.).

8a (5b). Legs normal (except No. 8).

8b (37a). Antennæ club flattened and spatulate or hollowed beneath (except Nos. 8 and 9) F v5 mid 4-6 ; 8 absent, 9 present. H rounded or produced with or without a short filamentous tail at v2.

*Lycæninæ*. The Weak Blues.

8c (10). Antennæ club gradual, cylindrical and not hollowed beneath. Eyes and palpi smooth. F vs 11 and 12 wide apart ; 7 from well before 6. H rounded, tailless.

8 (9). Forelegs with tibiæ thickened. F v9 from mid 7.

*Taraka*, *Doh*. The Forest Pierrot. (Plate 27).

9 (8). Legs normal. F v9 from before mid 7. Apex F pointed in ♂.

*Spalgis*, *M*. The Apefly. (Plate 27).

10a (8c). Antennæ normal, for group, see 8b.

10b (35a). F origin v10 nearer origin v11 or mid 11-7.

10c (24a). Eyes smooth, tornus evenly rounded, never produced.

10d (18a). Palpi smooth (except one species of No. 17).

10e (12a). F costa highly and evenly arched throughout ; vs 6 and 7 separate. H tailless.

10 (11). F vs 11 and 12 anastomosed.

*Pithecops*, *Hors*. The Forest Quakers. (Plate 27).

11 (10). F vs 11 and 12 wide apart and parallel.

*Neopithecops*, *Dist*. The Quaker (Plate 27).

**H. Lycænidæ—The Blues. Key to Genera.**—(*contd.*)

12a (10c). F costa straight or only slightly arched, more prominently so at the base than elsewhere.
12b (14a). f vs 6 and 7 approximate at their origins.
12 (13). F vs 11 and 12 free, though close. Tailed or tailless.
*Megisba, M.* The Malayan. (Plate 27.) (= *Pathalia, M.*).
13 (12). F vs 11 and 12 anastomosed. Tailed.
*Talicada, M.* The Red Pierrot. (Plate 27).
14a (12). F vs 6 and 7 wide apart at their origins.
14b (17). F vs 11 and 12 free, though often close and even touching.
14c (16). Below with prominent basal markings.
14 (15). F end v11 well beyond end cell.
*Castalius, Hub.* The Pierro ts. (Plate 27).
15 (14). F end v11 opposite end cell.
*Tarucus, M.* The Blue Pierrots. (Plate 27).
16 (14c). Below markings normal, *Lycæna*-like, no basal markings.
*Euchrysops, But.* The Plains Cupids. (Plate 27). (= *Edales, Swin.*).
17 (14). F vs 11 and 12 anastomosed. Mostly tailed.
*Everes, Hub.* The Tailed Cupids. (Plate 27).
18a (10d). Palpi hairy (faintly so in some species of *Chilades* and *Zizera*, while individuals and those from certain localities have them quite smooth).
18b (20a). F vs 11 and 12 anastomosed. Tailless.
18 (19). Habitat palaearctic.
*Cupido, Schrank.* The Cupids. (=*Tiora, Evans*).
19 (18). Habitat N. E. India.
*Bothrinia, Chapman.* The Hedge Cupid. (Plate 27.) ( =*Bothria, Chap.*).
20a (18b). F vs 11 and 12 not anastomosed, but usually more or less bowed towards one another and frequently touching in No. 22. Tailless.
20 (21–23). Fly high along hedges and bushes. Habitat palaearctic and Indo-Malayan.
*Lycænopsis, Fd.* The Hedgeblues. (Plate 27). (= *Cyaniris, Dal. : Notarthrinus, Chap. : Celastrina Tutt.*).
21 (20, 22, 23). Fly high on lime bushes. Habitat Indo-Malayan.
*Chilades, M.* The Limeblue. (Plate 27).
22 (20, 21, 23). Fly slow and low on grass.
*Zizera, M.* The Grassblues. (Plate 27). (= *Freyeria, Courv. : Zizeeria, Zizina, Zizula, Chap.*).
23 (20–22). Fly fast and low over meadows and in the open.
*Lycæna, F.* The Trueblues. (Plate 27). (= *Scolitantides, Hub. : Plebeius, Klug. : Aricia, R. and L. : Phengaris, Doh : Albulina, Latiorina, Vaccinilina, Tutt. : Iolana, Turania, Turanana, BB. : Bryna, Evans.*).
24a (10c). Eyes hairy.
24b (31b). Palpi hairy.
24c (27a). Tailless (also some species of No. 30). F vs 6 and 7 separate.
24 (25a). F vs 11 and 12 well separated. Very like *Lycæna*.
*Polyommatus, Lat.* The Meadowblues. (Plate 27). (= *Agriades, Hirsutina, Tutt.*)
25a (24). F vs 11 and 12 anastomosed.
25 (26). H costa rounded.
*Una, DeN.* The Una. (Plate 27).
26 (25). H costa straight and apex sharp pointed.
*Orthomiella, DeN.* The Straight Wing Blue. (Plate 27).
27a (24c). Tailed (except some species of No. 30).
27b (30). F vs 11 and 12 free, though close.
27 (28a). H rounded. F vs 6 and 7 separate.
*Syntarucus, But.* The Zebra Blue. (Plate 27).
28a (27). H produced.
28 (29). F vs 6 and 7 separate.
*Catochrysops, Bdv.* The Forget-me-not. (Plate 27).
29 (28). F vs 6 and 7 close together at origins.
*Lampides, Hub.* The Peablue. (Plate 27).
30 (27b). F vs 11 and 12 anastomosed ; 6 and 7 separate.
*Nacaduba, M.* The Lineblues (Plate 27).
31a (24b). Palpi smooth. F vs 6 and 7 separate.
31 (32, 33a). F vs 11 and 12 well separated, but joined by a short spur. Tailed.

**H. Lycænidæ—The Blues. Key to Genera.**—(*contd.*)

*Jamides*, *M.* The Ceruleans. (Plate 27).
32 (31. 33a). H vs 11 and 12 anastomosed. H produced; tailless.
*Azanus*, *M.* The Babul Blues. (Plate 27).
33a (31. 32). F vs 11 and 12 free and separate.
33 (34). H with cilia prolonged into short, very fine tails at vs 1, 2 and 3.
*Lycænesthes*, *M.* The Ciliate Blues. (Plate 27).
34 (33). H produced, but tailless.
*Nyphanda*, *M.* The Pointed Pierrot. (Plate 27).
35a (10b). F origin v10 much nearer 7 than 11; 7 and 6 from a point: 11 and 12 free. Eyes smooth. Palpi hairy. Tailed or tailless.
35 (36). F v12 ends before end cell.
*Heodes*, *Dalman*. The Coppers. (Plate 27). (= *Chrysophanus*, *Hub.*: *Hyrcanana*, *Rumicia*, *Tutt.*).
36 (35). F v12 ends after end cell.
*Heliophorus*, *Geyer*. The Sapphires. (Plate 26). (*Ilerda*, *Db.*).
37a (8b). Antennæ club gradual and cylindric (except No. 81).
37b (95). Body normal, slender, comparatively robust. Usually tailed and lobed, the tail being wider than in the *Lycæninæ*. F v8 usually absent and v9 usually present.
*Theclinæ*. The Strong Blues.
37c (45a). Palpi hairy and H with a more or less well developed lobe at tornus and usually with a tail. F vs 11 and 12 free; 5 and 6 separate.
*Thecla* Group. The Hairstreaks.
37d (40a). F vs 8 and 9 absent.
37e (39). No tail.
37 (38). No lobe. No brand.
*Neolycæna*, *DeN.* The Persian Hairstreak.
38 (37). H lobed. ♂ upf an oval brand at upper end of cell, which distorts v7 at its base, causing it to rise well before the end of the cell; in ♀ vs. 6 and 7 from a point.
*Callophrys*, *Billberg*. The Tailless Hairstreaks. (= *Satsuma*, *Mur.*).
39 (37e). Tailed. ♂ brand and venation as in last.
*Strymon*, *Hub.* The White line Hairstreaks. (Plate 26). (= *Thecla*, *Auct.*).
40a (37d). F v9 present, v8 absent. Nearly always a tail at v2.
40b (43a). F v7 ex 6.
40 (41a). H costa straight; F termen angled in middle; H lobed, tailless. ♂ uph brand base v7 and unf a tuft of hairs mid dorsum.
*Listeria*, *DeN.* Lister's Hairstreak. (Plate 26).
41a (40). H costa and F termen evenly convex. ♂ no brand.
41 (42). F v9 from half way along v7. H v3 from end cell. Tailed.
*Euaspa*, *M.* The Water Hairstreak. (Plate 26).
42 (41). F v9 from much nearer base v7; H v3 from before end cell. All except one species tailed.
*Thecla*, *F.* The Hairstreaks. (Plate 26). (= *Aurotis*, *Zephyrus*, *Dal.*: *Ruralis*, *L.*).
43a (40b). F vs 7 and 6 from a point. Tailed.
43 (44). H tailed at v2 and costa rounded.
*Chætoprocta*, *DeN.* The Walnut Blue. (Plate 26).
44 (43). H not tailed, produced and lobed at v1, above which dorsum is concave. Costa straight, apex right angled and termen concave below apex.
*Amblopala*, *Leech*. The Chinese Hairstreak.
45a (37c). Palpi smooth (except No. 80).
45 (46a). F v7 ends on termen in ♂ and ♀; 5 and 6 wide apart; 11 and 12 separate; 7 and 6 separate; H no lobe or tail, but wings may be highly angled. Eyes hairy.
*Curetis* Group. *Curetis*, *Hub.* The Sunbeams. (Plate 27).
46a (45). F v7 ends on termen in 1st 2 genera only, but 5 and 6 are in those cases approximate.
46b (83a). Eyes smooth.
46c (51a). F vs 5 and 6 approximate; 11 and 12 separate; 7 and 6 separate. Tail never very long.
*Amblypodia* Group. The Oakblues.
46d (49a). H with a lobe and a tail at v1.

**H. Lycænidæ.—The Blues. Key to Genera.**—(*contd*).

46 (47a). ♂♀ F vs 5 and 6 from a point. ♂ F vs 8 and 9 present and v7 ends on termen. ♀ v8 absent and v7 ends on costa.
*Iraota, M.* The Silverstreak Blues. (Plate 27).
47a (46). ♂♀ F vs 5 and 6 approximate, but not from a point.
47 (48). H tailed only at v1. ♂ F v8 present, absent in ♀; ♂♀ v7 ends on termen.
*Horsfieldia, Riley.* The Leafblues. (Plate 27). (= *Amblypodia, Auct.*).
48 (47). H tailed at vs 1, 2 and 3, tail at 2 longest. F vs normal, 8 absent and 7 ends on costa.
*Thaduka, M.* The Many-tailed Oakblue. (Plate 27).
49a (46d). H no tail at v1; usually lobe at tornus and a tail at v2. F venation normal as in last.
49 (50). H costa concave, apex pointed and more or less hooked. Tail spatulate.
*Mahathala, M.* The Falcate Oakblues. (Plate 27).
50 (49). H costa usually arched; tail, if present, not spatulate.
*Amblypodia Hors.* The Oakblues. (Plate 28). (= *Arhopala, Bdv.: Acesina, Darasana, Narathura, Nilasera, Panchala, Satadra, M.: Flos, Iois, Doh.*).
51a (46c). F vs 5 and 6 well separated (except some species of No. 59).
51b (57a). H no tail at v1; always lobed and with a tail or tooth almost invariably at v2, sometimes at v3 and even at v4.
51c (54a). H not produced at v2 or tornus; tail comparatively short. F vs 7 and 6 separate, 8 absent and 9 present.
*Surendra* Group. The Acacia Blues. (*Zinaspa, DeN.*).
51d (53). H no tail at v4.
51 (52). H costa convex; tail at v2 comparatively short (may be absent) and at v3, if present, very short.
*Surendra, M.* The Acacia Blue. (Plate 29).
52 (51). H costa straight, apex pointed. H lobe very large, tail at v2 moderately long and tail at v3 nearly as long.
*Mota, DeN.* The Saffron. (Plate 29).
53 (51d). H slender tails at vs 2, 3 and 4, tail at 2 longest.
*Semanga, Dist.* The Rededge. (Plate 29).
54a (51c). H produced at v2 and tail long, no tail at v3. F 7 and 6 close, 8 absent.
*Loxura* Group. The Yamflies.
54b (56). H dorsum excavated before lobe, which is pronounced. Tail very long.
54 (55). F v9 present. No ♂ brand.
*Loxura, Hors.* The Yamfly. (Plate 29).
55 (54). F v9 absent. ♂ uph a brand along v1.
*Yasoda, Doh.* The branded Yamfly. (Plate 29).
56 (54b). H Dorsum not excavated and lobe obsolete.
*Drina, DeN.* The Yams. (Plate 29).
57a (51b). H always tailed at v1 as well as at v2 and sometimes at v3 also.
57b (60a). F vs 6 and 7 forked or from a point.
*Spindasis* Group. The Silverlines.
57c (59). F v1 absent, 9 present.
57 (58). H lobe ill developed: tail at v2 half as long as tail at v1.
*Aphariti*s, *Riley.* The Silverlines (= *Cigaritis, Auct.*).
58 (57). H lobe prominent: tails at vs 1 and 2 nearly equal.
*Spindasis, Wallen.* The Silverlines. (Plate 29) (= *Aphnæus, Auct.*).
59 (57c). F vs 8 and 9 present in ♂, v8 absent in ♀. H 2 equal tails at vs 1 and 2 in ♂, an additional short tail at v3 in ♀.
*Zesius, Hub.* The Redspot. (Plate 29).
60a (57b). F vs 7 and 6 separate at origins.
60b (66a 81a). H nearly equal tails at vs 1 and 2, under ½ inch.
*Tajuria* Group. The Royals.
60c (63a). ♂ uph always with a brand about base v7
60 (61a). ♂ upf with a brand on v1 and an overlying tuft of white hairs. F v9 present and in one species v8 as well.
*Ducalana, M.* The Tufted Royal. (Plate 29). (= *Arrhenotrix*,
61a (60). ♂ upf no brand or tuft. F v9 present, 8 absent.
61 (62). ♂ unf with a tuft mid dorsum.

**H. Lycænidæ.—The Blues. Key to Genera.—(*contd.*)**

*Pratapa, M.* The Tufted Royals. (Plate 29). (= *Camena, Hew.* : *Creon, DeN.*).

62 (61). ♂ unf no tuft mid dorsum.

*Maneca, DeN.* The Slate Royal.

63a (60c). ♂ uph no brand and unf no tuft.

63 (64a). ♂ F vs 8 and 9 absent. In one species ♂ has a brand upf about end cell, which disappears on the application of benzine.

*Britomartis, DeN.* The Baby Royals. ( = *Bullis, DeN.*).

64a (63). F v8 absent, 9 present.

64 (65). ♂ upf a black brand in cell at end, which does not disappear on the application of benzine.

*Creusa, DeN.* The Black-branded Royal.

65 (64). ♂ upf normally no brand, if so, of modified scales at end cell, which disappears on the application of benzine.

*Tajuria, M.* The Royals. (Plate 29). (= *Cophanta, Remelana, M.* : *Ops, DeN.*).

66a (60b. 81a). H 2 unequal tails at vs 1 and 2, a tooth or very short tail at v3 and rarely a tooth at v4.

66b (73a). H tail at v1 longer than the tail at v2 ; F v9 present.

*Jacoona* Group. The Imperials.

66c (71a). F v9 long, its origin well before end v 10.

66 (67a). ♂ no secondary sexual characters. F vs 11 and 12 separate. H v7 from well before 6. Tail at v1 12 mm., at v2 6mm.

*Charana, M.* The Mandarin Blues. (Plate 29).

67a (66). ♂ with secondary sexual characters.

67 (68a). F vs 11 and 12 anastomosed in ♂, well separated in ♀. H v7 from just before 6. Tail at v1 17 mm. in ♂, 28 in ♀ : at v2 2mm. in ♂, 9 in ♀. ♂ with a black area of modified scales about end cell upf.

*Jacoona, Dist.* The Great Imperial.

68a (67). F vs 11 and 12 well separated.

68b (70). ♂ ♀ F v8 absent. H vs 3 and 4 from a point ; 7 from well before 6.

68 (69). F v9 from nearer 10 than end cell. ♂ uph large oval black brand about origin v7, covered by a thick tuft of black hairs ; unf corresponding nacreous area above mid dorsum, which is bowed. Tail at v1 10 mm. at v2 4 mm.

*Manto, DeN.* The Green Imperial. ( = *Psudomyrina, Druce.*).

69 (68). F v7 from just before end cell ♂ uph small inconspicuous brand base 6 in the middle of a large nacreous area ; unf a tuft of white tipped brown hairs mid dorsum over a nacreous area ; dorsum F bowed. Tail at v1 8–10 mm., at v2 3–5 mm.

*Mantoides, Druce.* The Brush Imperial.

70 (68b). F v8 present in ♂, absent in ♀. H v3 from just before end cell and 7 from just before 6. ♂ uph prominent circular black brand base 7 in middle of a nacreous area ; unf a tuft of white hairs mid dorsum over a nacreous area ; dorsum bowed. Tail at v1 12mm. in ♂, 20mm. in ♀ ; at v2 4–7mm.

*Neocheritra. Dist.* The Grand Imperials. (Plate 29).

71a (66c). F v9 short, its origin after end v10 ; 8 absent ; 11 and 12 close. No secondary sexual characters. Tail at v2 = 4mm.

71 (72). Tail at v1 = 8mm.

*Purlisa, Dist.* The Giant Imperial.

72 (71). Tail at v1 = 12mm.

*Suasa, DeN.* The Red Imperial. (Plate 29).

73a (66b). H tail at v2 longer than tail at v1. F v8 absent.

*Marmessus* Group

73b (78a). F v9 present.

73c (76a). F v9 comparatively long, origin well before end v10. Tail at v2 very long.

73 (74a). F origin v9 nearer to base v7 than to its apex. F apex truncate and termen angled in middle. Tail at v1 4mm., at v2 13mm

*Cheritrella, DeN.* The Truncate Imperial. (Plate 29).

74a (73). F origin v9 nearer to apex than to base v7.

74 (75). F origin 5 nearer to 6 than to 4. Tail at v1 6mm., at v2 25mm.

*Neomyrina, Dist.* The White Imperial. (Plate 29).

**H. Lycænidæ.—The Blues. Key to Genera.**—(*contd.*)

75 (74). F origin 5 mid 6-4. ♂ uph small pale brand base 7, covered by a thin tuft. Tail at vl 5mm., at v2 22mm.
*Cheritra, M.* The Common Imperial. (Plate 29).
76a (73c). F v9 short, origin after end v10.
76 (77). F v12 ends before end cell. Tail at vl 5mm., v2 18mm. ♀ v3 1½mm.
*Ticherra, DeN.* The Blue Imperial.
77 (76). F v12 ends after end cell. Tail at v2 under ½ inch. ♂ with brand in one species.
*Biduanda, Dist.* The Posies. (Plate 29).
78a (73b). F v9 absent (rarely present in ♀ of No. 76).
78b (80). H angled and tailed at v3.
78 (79). H not angled at v4. ♂ uph large oval speckled brand about origin v7 with a white area below and a nacreous area above; unf corresponding white patch and nacreous area, dorsum much bowed. Tail under ½ inch.
*Marmessus, Hub.* The Common Posy. (Plate 29). (= *Drupadia, M.*).
79 (78). H angled at v4, ♂ upf a circular brand bases 2 and 3, which disappears with benzine. Tail over ½ inch.
*Eoxylides, DeN.* The branded Imperial. (= *Marshallia, Doh.* : *Indoxylides, Druce*).
80 (78b) H in ♂ not angled or tailed at vl and tail at v2 short; in ♀ angled at vl, but not tailed, tail at v2 long, but under ½ inch.
*Thamala, M.* The Cardinal. (Plate 29).
81a (60b. 66a). H with 3 more or less equal slender tails at vs 1, 2 and 3. F vs 8 and 9 absent.
*Horaga* Group. The Onyxes.
81 (82). H sharply right angled and produced at v4.
*Rathinda, M.* The Monkeypuzzle. (Plate 29).
82 (81). H termen at most faintly angled at v4. ♂ unf a brand in two species.
*Horaga, M.* The Onyxes. (Plate 29).
83a (46b). Eyes hairy.
83 (84a). Palpi hairy. H with 3 slender tails at vs 1, 2 and 3, that at 2 longest F vs 8 and 9 absent; 7 and 6 from a point; 11 and 12 separate; 5 and 6 separate.
*Catapœcilma* Group. *Catapœcilma, But.* The Tinsels. (Plate 29).
84a (83). Palpi smooth.
84b (87a). H with a tail at vl as well as at v2, that at 1 longest, lobed. F vs 8 and 9 absent, 7 and 6 separate, also 5 and 6.
*Hypolycæna* Group. The Tits.
84 (85a). Antennæ club flattened and somewhat spatulate. F vs 11 and 12 close.
*Chliaria, M.* The Blue Tits. (Plate 29).
85a (84). Antennæ cylindrical as usual.
85 (86). H apex evenly rounded, end v7 mid 8-6. ♂ one species with a brand on disc upf
*Hypolycæna, Fd.* The Tits. (Plate 29).
86 (85). H apex sharp, v8 short and end v7 much nearer end v6, termen quite straight from apex to v3. Tails long and fluffy.
*Zeltus, DeN.* The Fluffy Tits. (Plate 29).
87a (84b). H no tail at vl, though lobe, which is more prominent than in the other groups as a rule, may be pendulous and look like a tail. F v8 absent.
*Artipe* Group. The Flashes.
87b (94). F v9 present.
87c (91a). F v9 comparatively long, about half as long as v7 and arises well before end v10 from about half way along v7.
87d (89a). No secondary sexual characters.
87 (88). ♂ with slender tail, ♀ with a very long fluffy white tail.
*Artipe, Bdv.* The Green Flash. (Plate 29). (= *Lehera, DeN.*).
88 (87). ♂ ♀ with slender tail at v2.
*Deudoryx, Hew.* The Cornelians. (Plate 29).
89 (87d). ♂ uph with a brand about base v7 and usually unf with a tuft mid dorsum.
89 (90). F vs 7 and 6 from a point and lower dcv concave; 11 and 12 parallel, separate. ♂ unf tuft always present.
*Virachola, M.* The Guava Blues. (Plate 29).

**H Lycænidæ. The Blues. Key to Genera.**—(*contd.*)

90 (89). F vs 6 and 7 separate, lower dcv straight; 11 and 12 close. ♂ tuft missing in two species and individuals of another.

*Rapala*, *M.* The Flashes. (Plate 29). (= *Baspa*, *Bidaspa*, *Hysudra*, *Nadisepa*, *Vadebra*, *M.*).

91a (87c). F v9 short, about ¼ length of v7 or less, arising beyond mid 7 and at or after end v10.

91 (92a). H lobe small. F vs 11 and 12 close, ♂ uph prominent brand about base v7 and unf either a tuft or a brand.

*Sinthusa*, *M.* The Sparks. (Plate 29). (= *Pseudochliaria*, *Tyt.*).

92a (91). H lobe elongate and pendulous.

92 (93). H produced and tail very long, over ½ inch. ♂ uph brand about base v7 and unf a tuft mid dorsum.

*Bindahara*, *M.* The Planes. (Plate 29).

93 (92). H tail well under ½ inch. ♂ no brand.

*Araotes*, *Doh.* The Witch. (Plate 29).

94 (87b). F v9 absent; 11 and 12 touch. ♂ uph a tuft of black hairs mid cell and an obscure brand about origin v7; unf tuft black hairs mid dorsum over a polished area. H tail under ½ inch.

*Sithon*, *Hub.* The Plush. (Plate 29).

95 (37b). Highly abnormal and more like a moth. Large, body very stout as wide as cell. F vs 11 and 12 separate; seven ends on termen. 7 and 6 forked, 8 and 9 present. 5 and 6 separate. H lobed, tailless. Eyes smooth. Palpi smooth and unusually small.

*Liphyrinæ*. *Liphyra*, *Wd.* The Moth Butterfly (Plate 27). (= *Sterosis*, *Fd.*).

NOTE.—The general arrangement is much as usual and is a mean more or less between the various authorities. I have put the *Poritiinæ* at the beginning as being nearest to the *Erycinidæ*. The genera *Lycæna*, *Lycænopsis* and *Zizera* have been split up into a number of genera based on the genitalia; I do not know whether such genera will stand, but I personally hope not, *selira* is very closely allied to *nissa*. *Koll*, which is a true *Rapala* and I have therefore sunk the genus *Hysudra* to *Rapala* (H 90). I have not seen a ♂ of *virgo*, *DeN*, the type of *Pseudochliaria*, *Tyt.*, and it may perhaps be worth retaining it as distinct from *Sinthusa* (H 91). *Ops*, *DeN.*, *Creon*, *DeN.*; and *Bullis*, *DeN.*, do not seem to be worth keeping separate from *Tajuria*, *Pratapa* and *Britomartis* respectively (H. 65, 61 and 63), nor does *Zinaspa* from *Surenda* (H 51). *Daculana* should probably be united to *Pratapa*.

## KEY TO SPECIES

**1. Cyaniroides.—The Emerald.**

Above ♂ shining emerald green, broad dark brown borders; ♀ pale greyish blue with very broad dark brown borders and base H. Below white with numerous fine zigzag lines.

*libna andersoni*, *M.* (28–32). The Emerald. Kisseraing Is. Mergui (Moore). VR.

**H. 2 Poritia.—The Gems. (Plate 26).**

♂ above brilliant blue or green with a broad black apex and costa F and H the apex F is more or less blue spotted; there may or not be more or less well developed black spot in the middle of 1 upf. Below with numerous catenulated bands. ♂♂ are very variable and it is difficult to distinguish between the species.

1a (3a). Below the catenulated bands are evenly distributed; unf across 2 and 3 there are 2 bands internal to the discal band.

1 (2). ♂ upf blue colour confined to 1 and 2, apex and cell unmarked black, uph blue colour up to v5 and mid cell. ♀ extensively violet blue; upf with only a narrow black bar at end cell; more or less prominent submarginal blue

**H. 2. Poritia. The Gems. (Plate 26).**—(*contd.*)

spots, between which the veins are obscurely broad reddish. Below grey, bands cinnamon.

*sumatræ, Fd.* (26–38). The Sumatran Gem. Mergui. VR.

2 (1). ♂ upf blue colour to v4; marginal and apical spots large and prominent and with a basal blue streak along upper edge of cell; uph blue colour not above v4 or in cell. Below very dark plumbeous, much darker than any other species of the genus; bands close and very dark cinnamon. ♀ brown; upf an obscure orange discal spot; below paler.

*philota, Hew.* (29). The Malay Gem. Mergui. VR.

3a (1a). Below catenulated bands wider apart on disc, especially beyond the cell; unf only one band across 2 and 3 internal to the discal band; ground colour white or grey. ♂ upf blue colour nearly always reaches to v4.

3b (6a). ♀ uph more or less violet blue, no yellow.

3c (5). ♀ upf no yellow whatsoever, broadly violet blue.

3 (4). ♀ uph cell and basal half of 4 black; upf cell black with a blue spot in the middle, 2 apical and 1 or 2 submarginal spots. ♂ upf cell mostly blue, but there is a black streak above the mv nearly to the base; apex and margin usually not spotted, but there may be traces of spots; uph except near margin blue colour does not enter 4, nor into cell except more or less patchily. Below very white, much whiter than any other species except the ♀ of No. 7; catenulated bands pale, with only a faint cinnamon tinge.

*dawna, Evans.* (25–35). The Dawna Gem. Dawnas—S. Burma. R.

4 (3). ♂ ♀ uph cell and to v4 black; upf cell blue. Below grey, bands very prominently cinnamon.

α. ♂ ♀ upf always with apical and 2 or 3 submarginal spots (may be absent in DSF).

* *pleurata geta, Faw.* (30–40). The Green Gem. Manipur—Dawnas. NR.

β. ♂ ♀ apical and submarginal spots absent; ♀ submarginal spots present, but apical may be present or absent.

*pleurata regia, Evans.* (30–38). Tavoy—S. Burma. NR.

5 (3c). ♀ upf always a yellow discal patch in 4; cell black; uph black with a more or less developed violet blue band on disc. ♂ upf cell usually all black, but there may be traces of blue scales at the base and in the middle.

α. ♂ ♀ apical and submarginal spots usually present. ♂ uph cell and all 4 black.

*hewitsoni hewitsoni, M.* (31–38). The Common Gem. Kumaon—Assam. NR. (= *interjecta, nigrita, palilia, principalis, Fr.*).

β. ♂ ♀ upf apical and submarginal spots usually absent. ♂ uph cell and 4 may be blue with a narrow black bar end cell.

*hewitsoni tavoyana, Doh.* (30–36). Burma. NR.

6a (3b). ♀ uph more or less yellow.

6 (7). ♀ above entirely yellow except for a dark brown costa and termen upf and some diffuse marginal spots uph. ♂ upf cell black and the blue colour only just enters 3; submarginal spots obscure, apical absent; uph cell black and space 4 blue except at base. Below white with very prominent ferruginous bands and prominent ferruginous patches at apex F and H, making the underside very distinctive.

*karennia, Evans.* (34–36). The Karen Gem. Karens. Dawnas. R.

7 (6). ♀ above with yellow discal patches only, which are of variable extent, on H consisting of at most a narrow band. ♂ very variable, but always much bluer than any of the preceding species; upf basal half entirely blue, apical, and submarginal spots usually well developed and the apical may be joined to the blue discal area; uph blue colour never enters cell nor into 4 except sometimes at the margin.

α. ♀ as ♀ of No. 5 but yellow spots uph.

*erycinoides elsiei, Evans* (26–36). The Blue Gem. Assam—N. Shan States. NR.

β. ♀ above no violet.

* *erycinoides phraatica, Hew.* (26–36). S. Shan States—S. Burma. NR.

**H. 3. Simiskina.—The Brilliants. (Plate 26).**

♂ above black with brilliant blue or green markings; upf a basal streak below the mv, costal spots beyond and a complete curved submarginal row, also conjoined spots mid dorsum; uph basal streak below mv, discal and marginal spots.

**H. 3. Simiskina.—The Brilliants. (Plate 26.)—(*contd*)**

Below no catenulated bands. Termen in ♀ sharply angled and produced at v4. ♂♂ very alike above, but ♀♀ very distinct.

1a (3a). Unf with a white central band. ♀ above dark brown.

1 (2). Unf the central white band broad and increasing to dorsum markedly, continued on H through end cell. ♀ upf a prominent circular white discal spot. Below dark ferruginous brown.

* *phalena harterti, Doh.* (28–34). The Broad-banded Brilliant. Assam—S. Burma. VR.

2 (1). ♀ unf the central white band narrow, not increasing to dorsum and continued narrowly on H well beyond end cell. Below bright ferruginous, no dark bar end cell unf; a rather obscure whitish submarginal band, irregular on H. Above plain brown. (Hewitson's type is tinted dull blue above and on uph has a pale blue line from the dorsum to v4 along the margin; these are inconstant characters in other species). ♂ unknown.

*pediada, Hew.* (30). The narrow-banded Brilliant. Mergui. VR.

3a (1a). Below no white band.

3 (4a). Unh ♂ ♀ prominent sharply defined blue line along the termen from tornus to v4. ♀ above plain dark brown with traces uph of a blue marginal line. Below plain, rather pale brown, no ferruginous tinge, pale bordered dark line end cell, similar discal and submarginal lines, former being very irregular on H. ♀ only slightly angled at v4.

*pharyge, Hew.* (32–35). The Blueline Brilliant. Mergui. VR.

4a (3). Unh no blue submarginal line. Below always with more or less of a ferruginous tinge.

4 (5). ♀ above plain dark brown. ♂ below dark purple brown with a shining gloss, lines as in last; outer half H beyond cell prominently paler; unf submarginal line parallel to margin. ♀ below pale brown with a faint purple gloss. ♂ above markings greener than usual.

* *pasira dohertyi, Evans.* (28–35). The Green Brilliant. Tavoy- S.Burma. R.

5 (4). ♀ above orange yellow; upf apex and termen dark brown, sometimes with dark brown shading of varying width and intensity along dorsum and a thin line end cell; uph all orange yellow, sometimes more or less suffused dark brown scales and with diffuse submarginal spots. ♂ above bluer than the last. Below marked as the last; ♂ unf apex and upper part of termen prominently paler and the submarginal line curved in at the upper end. ♀ ochreous below with a strong purple wash.

**phalia, Hew.* (35–40). The Blue Brilliant. Dawnas—S. Burma. R. (= *potina, Hew.* : *fulgens, Dist.* : *binghami, Fr.*).

**H. 4. Deramas.—The Bluejohn. (Plate 26).**

♂ above black, lower part F and H shining blue, divided on F by a black streak in 1 and uph bearing diffused dark submarginal spots. ♀ purple instead of blue, more extensive on F and not divided by a black streak. Below purple brown (to ochreous in ♀) with dark discal and submarginal line and some dark spots at tornus H. H margin even in ♂; slightly angled at v4 in ♀.

**livens jasoda, DeN.* (33–36). The Bluejohn. Karens—S. Burma. R. (= *zanella, DeN.*).

**H. 5. Gerydus.—The Brownies. (Plate 26).**

Above dark brown with a more or less prominent curved white or pale yellow discal band upf from mid costa to tornus, portion in 1 and 2 consisting of more or less detached spots. Below brown with more or less obscure spots on H. Body in ♂ very long, projecting well beyond the wings.

1 (2a). ♂ v4 F thickened at base. Upf discal band very variable, straight or angled, spot in 1 may be absent and sometimes spot in 2 in ♂.

* *croton, Doh.* (28–42). The Plain Brownie. Bhamo—S. Burma. NR.

2a (1). ♂ v4 F not thickened at base.

2b (5a). Upf the lower edge of the discal band even.

2c (4). Upf the lower edge of the discal band irregular; if extended to base, there is always a dark area about origins vs 2 and 3.

2 (3). Apex upf not conspicuously darker than the rest of the wing; discal band as in last, but in ♂ may be reduced to a small whitish patch base 4.

* *boisduvali assamensis, Doh.* (32–38). The Common Brownie. Sikkim-Burma. C

**H. 5. Gerydus.—The Brownies. (Plate 26).—(*contd.*)**

3 (2). Apex F conspicuously darker than the rest of the wing, which is much paler brown ; discal band more prominent and in DSF may extend to the base, the whole of the upperside being white except for the apex F, costa H and a discal brown patch F.

*longeana, DeN.* (30–38). Long's Brownie. Manipur—Burma. NR

4 (2c). Upf discal band broad and white = at least ¼ wing and even edged on both sides.

*biggsii, Dist.* (32–38). Bigg's Brownie. Burma. R. (= *gopara, DeN. atomaria, Fr.*).

5a (2b). Upf discal band broad and upper edge sharply angled in at v3.

5 (6). Upf discal band not divided and often extended to base ; ♂ ♀ uph with a pale discal streak.

*symethus diopeithes*, Fruh. (40–50). The Great Brownie. Nagas—Burma. VR.

6 (5). Upf discal band completely divided by a broad brown streak from base 2. ♀ upf and all uph except costa very pale brown.

**ancon, Doh.* (36–48). The Divided Brownie. Burma. NR.

**H. 6. Allotinus.—The Darkies. (Plate 26).**

Above dark brown, sometimes with a pale area upf as in last. Below grey striated or spotted on H as in last. Body of ♂ very long, longer than the wings.

1a (3a). Below broad catenulated markings and small dots as in *Gerydus*. Above marked as *Gerydus*.

1 (2). F apex projected as a fine long tooth and termen crenulate. Below brown with an anti-terminal band. ♂ upf yellowish white curved discal fascia in 2–4. ♀ white except for apex F and costa H.

*drumila, M.* (48–54). The Crenulate Darkie. Sikkim—Assam. VR. (= *insignis, Stg.*).

2 (1) F apex not projecting, termen straight in ♂, crenulate in ♀.

α. ♂ ♀ fascia as in ♂ of No. 1, becoming obscure in ♂.

**multistrigatus multistrigatus, DeN* (48–54). The Great Darkie. Kumaon—Shan States. R.

β. Below greyish yellow, no ante-erminal band. Smaller. ♂ as No. 1, but band upf slightly bent forward. ♀ between Nos. 1 and 3.

*multistrigatus apthonius, Fruh.* (48–54). Karens. Dawnas. R.

3a (1a). Below striated.

3b (8). Upf pale discal marking, if present, never to base and never bluish.

3c (7). Unh dark brown spot mid costa not more prominent than any other spot.

3d (5a). ♂ upf prominent pale streak about basal half v4 ; ♀ pale discal area. Unf uniform.

3 (4). ♂ upf pale streak long and comparatively broad. Below much striped.

**horsfieldii continentalis, Fruh.* (38–44). The Common Darkie. Assam—Burma. C.

4 (3). ♂ streak short and comparatively narrow. Below less striped.

*posidion atacinus, Fruh.* (34–40). The Lesser Darkie. Burma. R.

5a (3d). ♂ ♀ upf discal streak and pale area obsolete.

5 (6). Unf apex prominently light burnt sienna. ♂ F apex produced.

*taras, Doh.* (34–40). The Brown-tipped Darkie. Burma. R.

6 (5). Unf uniform. ♀ apex not produced. ♀ termen prominently-toothed at v4.

*fabius panormis, El.* (34–40). The Angled Darkie. Nagas—Karens. VR.

7 (3c). Unh prominent dark brown spot mid costa. ♂ ♀ F and H termen crenulated.

*nivalis substrigosa, M.* (20–30). The Small Darkie. Karens.—S Burma R.

8 (3b). Upf with a blue patch extending to base, narrow in ♂, broad in ♀.

*subviolaceus manychus, Fruh.* (30–38). The Blue Darkie. Manipur—Burma. R.

**H. 7. Logania.—The Mottles. (Plate 26).**

Above dark brown with a whitish or pale bluish discal area, which may extend to base and all H. Below closely mottled.

1 (2a). Below dark mottled with on H a very prominent broad white streak from base to termen below apex. Above bluish white with a very broad black apex upf.

*sriwa, Dist.* (28–35). The Striped Mottle. Mergui. VR.

2a (1). Below uniformly mottled, no white streak H.

2b (4. 5). Upf apex dark brown with broad bluish white discal area, extending to costa, dorsum and often to base, which may be suffused brown. Uph costa brown, rest bluish white, more or less suffused brown. Below prominently mottled.

2 (3) Unh white mottled dark brown.

**marmorata, M.* (20–22). The Pale Mottle. S. Burma. R.

3 (2). Unh ochreous. Termens crenulate.

*luca, DeN.* (23-30). The Yellow Mottle. Rangoon—S. Burma. R.

4 (2b. 5). Upf apex brown, prominent bluish white discal patch, which does not extend to base, costa or dorsum, where the brown area is bluish. Uph costa brown, rest bluish, often with discal white patch. Unf broad discal white fascia, rest and unh prominently mottled.

*watsoniana, DeN.* (24–32). Watson's Mottle. Manipur—Burma. R. (= *sub-fasciata, Tyt.*).

5 (2b. 4). Upf brown with a rather small discal bluish white patch, remainder dark brown. Below rather obscurely mottled.

*massalia, Doh.* (20–30). The Dark Mottle. Assam—Burma. VR.

**H. Taraka.—The Forest Pierrot. (Plate 27).**

Above ♂ dark brown : upf with more or less of a black spotted white discal patch and uph the black spots from below showing through. ♀ white with broad dark costa and termen upf and the dark spots from below showing through faintly. Below white with numerous large black spots, including 4 along the costa F

**hamada mendesia, Fruh* (20–30). The Forest Pierrot. Sikkim—Burma. NR.

**H. 9. Spalgis.—The Apefly. (Plate 27).**

Above brown with diffused or well defined white patch upf. Below covered with numerous very fine wavy brown lines.

α. Paler. Upf white discal area nearly always present.

**epius epius, Wd.* (20–30). The Apefly. Ceylon, S. India—Bengal. Kumaon—Burma. NR.

β. Darker. White area obsolete upf.

*epius nubilus, M.* Andamans, Nicobars.

**H. 10. Pithecops.—The Forest Quaker. (Plate 27).**

Brown or blue above. Below white, with a large prominent black costal spot unh and no basal markings.

1 (2). Above dark shining blue with broad brown border in ♂ ; ♀ brown. Unh no postdiscal band.

*fulgens, Doh.* (22–28). The Blue Quaker. Assam. R.

2 (1). Above ♂ ♀ brown, paler on disc F. Unh usually with narrow postdiscal band. Unf 2 small prominent costal spots.

**hylax, F.* (21–26). The Forest Quaker. Sikkim–Burma. NR.

**H. 11. Neopithecops.—The Quakers. (Plate 27).**

Above brown with more or less of a white discal patch F and H ranging from almost entirely brown in WSF to almost entirely white in DSF. Below very like *P. hylax ;* unh black costal spot is smaller and with a small spot on dorsum, also there may be 3 basal spots and a postdiscal band. Unf no prominent spots on the costa except as part of the postdiscal band.

**zalmora, But.* (20–30). The Quaker. Ceylon, S. India—Bengal. Kumaon—Burma. Andamans. C. (= *dharma, gaura, todara, M.*).

**H. 12. Megisba.—The Malayan. (Plate 27).**

Above dark brown with a well defined whitish discal patch nearly always present upf. Below white with spots *Lycæna*-wise, that is with a discal series and on H basal spots ; in addition in strongly marked specimens there are 4 small spots on the costa upf as well as a spot in the cell.

α. Tailless.

**malaya thwaitesi, M.* (20-30). The Malayan. Ceylon, S. India—Bengal, NR. (= *hampsoni, M.*).

β. Tailed.

*malaya sikkima, M.* Kumaon—Burma. Andamans. NR. (= *albidisca, M. : ganga, Swin.*).

**H. 13. Tajicada.—The Red Pierrot. (Plate 27.)**

Above black with a broad orange area H. Below white, large discal and marginal black markings F ; H with broad orange marginal band bearing white spots. Cilia chequered.

α. Above orange area more extensive, width ¼ inch. Unh markings reduced, most of discal band H absent.

*nyseus nyseus, Guer.* (30-36). The Red Pierrot. Ceylon, S. India. NR.

β. Above orange area restricted, well under ¼ inch. Unh markings large and complete.

**nyseus khasiana, Swin.* (30-36). Assam—N. Burma. NR.

γ. Smaller and much darker. Unf outer black border nearly meets discal band ; all markings very broad.

*nyseus burmana, Evans.* (28-34). Shan States. R.

**H. 14. Castalius.—The Pierrots. (Plate 27).**

Mostly white above or with a broad white discal band. Below white with very characteristic markings.

1 (2a). Above white with several black spots on the white areas F and H ; bases metallic blue, suffused dark scales in ♀, costa H dark brown. Below with several irregularly arranged black spots. Unf basal markings consist of a long basal streak, spot end cell and a spot on 1, all well separated.

**rosimon rosimon, F.* (24-32). The Common Pierrot. Ceylon. India. Burma. C. (= *approximatus, But. : chota, Swin.*).

β. Spots larger.

*rosimon alarbus, Fr.* Andamans and Nicobars. C.

2a (1). Above a broad white band across both wings, extending to costa on H except rarely in No. 2 the upper end on F angled outwards ; costa F and margins dark brown ; white band immaculate except on H in No. 5*a*.

2b (5). Unf discal band in 3 portions, upper and lower consisting of large spots, central smaller and nearer margin. Unh discal band usually also in 3 parts.

2 (3. 4). Unf basal markings consist of a short basal streak and a well detached broadly angled band from costa to dorsum. Unh at base a narrow elbowed band, often macular and reaching costa. ♂ black above.

α. Above white band narrower in all seasonal forms.

*caleta hamatus, M.* (26-32). The Angled Pierrot. Ceylon. NR. (= *interruptus, DeN.*).

β. Above white band wider ; markings below smaller and more macular.

**caleta decidia, Hew.* S. India. Sikkim—Burma. NR.

3 (2. 4). Unf basal markings consist of 2 parallel and nearly equal inclined streaks. Unh 2 parallel basal streaks, not reaching costa, often coalesced. ♂ cobalt blue above ; ♀ dark brown.

α. Above discal band broad. Below markings smaller and well separated.

*ethion ethion, Db. and Hew.* (26-30). The Banded Blue Pierrot. Ceylon, S. India. Assam—Burma. Andamans. NR. ( = *colmus, vavasana, Fr.*).

β. Above discal band narrower. Below markings large, discal spots on H coalesced.

*ethion airavati, Doh.* Nicobars. R.

4 (2.3). Unf basal markings consist of a single broad, sharply angled band meeting a black area at base H. ♂ black above.

*elna noliteia, Fruh.* (30-34). The Elbowed Pierrot. Orissa. Sikkim—Burma. Andamans. NR. (= *elina, Fr.*).

**H. 14. Castalius.—The Pierrots. (Plate 27).--(*contd.*)**

5 (2b). Unf discal band either continuous or lower part only separate ; basal markings consist of a single broad inclined straight streak from mid costa to dorsum near base, joining a black area at base H. ♂ above black. Unh the 3 parts of the discal band may be conjoined.

*α*. Above white areas more extensive ; in DSF uph black discal spots show up as below owing to the black margin being narrower.

*roxus roxana, DeN.* (26-30). The Straight Pierrot. Assam—N. Burma. NR.

β. Above white areas narrower. Uph never with detached discal spots.

**roxus roxus, God.* S. Burma. Andamans. NR.

γ. Above white areas much restricted. Unh extreme base costa not white.

*roxus manluena,* Fd. Nicobars. R.

**H. 15. Tarucus.—The Blue Pierrots. (Plate 27).**

Small ; blue above. Below white with a prominent dark streak from the base in each wing. Close to *Castalius*, but without the large white areas above.

1 (2a). Unh at most a single obscure metallic spot at the tornus. ♂ above very dark purple blue, with rather narrow dark brown border ; ♀ plain brown, rarely with the bases blue. Below markings as in next, but darker, broader and coalescent.

**ananda, DeN.* (22-28). The Dark Blue Pierrot. S. India. Sikkim—Burma. R. (= *dharta, BB.*).

2a (1). Unh with a prominent black spot above the tail, a prominent metallic spot at tornus and 2 or 3 along the termen.

2 (3) ♂ above rather pale violet blue with a narrow brown border ; upf always a black spot end cell and sometimes a spot below it and 2 discal spots. ♀ brown with blue bases, discal spots fully developed and whitish patches beyond cell F and along margin H. Below plentifully marked with rusty brown to black streaks on a white ground, varying in size and intensity ; unf a spot in the cell and another below it.

**thcophrastus nara,* Koll. (22-30). The Rusty Pierrot. Ceylon. India. N. Burma. C. (= *alteratus, M. : collinara, extricatus, But. : bengalensis, nigra, BB.*).

3 (2) ♂ darker with broad fuscous borders. ♀ dark brown.

*venosus, M.* (22-33). The Kulu Pierrot. Abbottabad—Kumaon. R.

**H. 16. Euchrysops.—The Plains Cupids. (Plate 27).**

Blue above with catenulated discal spots on a grey ground below ; on unh spots at base, along costa and tornus are black, latter crowned metallic and orange ; remaining spots very much paler brown. Unf no spot in cell.

1 (2a). Unh discal band very broken, spots in 1 and 1a completely separate; 2 nearly equal black spots at tornus ; no spot in 1 below cell spot. ♂ above violet ; uph 2 black spots at tornus and no spot in 1a.

**canejus, F.* (25-33). The Gram Blue. Ceylon. India. Burma. Nicobars. C. (= *theseus, Swin.*).

2a (1). Unh discal band more regular ; spots in 1 and 1a with edges conjoined. WSF unh tornal spot in 1a.

2 (3). Unh no spot in 1 under cell spot ; spot at tornus subqual, uph single spot at tornus above tail.

*α*. Much brighter blue and below markings more prominent.

*contracta nila, Evans.* (20-25). The Small Cupid. Ceylon. NR.

β. Duller above and below.

*contracta contracta, But.* S. India—Sind, Punjab, N.W.F. Province. NR (= *ella, hapalina, But.*).

3 (2). WSF unh a spot in 1 under cell spot ; tornal spot in 2 far more prominent than the spot in 1.

*α*. WSF and DSF very alike. Larger and brighter blue. Uph marginal spot in 2 prominent, but there is a series of dusky spots on either side and a prominent white line beyond them.

*pandava lanka, Evans.* (30-35). The Plains Cupid. Ceylon. C.

β. WSF and DSF very different. Smaller. Uph only a marginal spot in 2, no marginal white line. DSF below has the discal band much widened and on H is conjoined to the spot end cell, forming a large central dark patch ; tornal spots obsolete.

**H. 16. Euchrysops.—The Plains Cupids.** (**Plate 27**). (*contd.*)

**pandava pandava, Hors.* (25-30). India, Burma, Nicobars. C. (= *bengalia, DeN.* : *nicola, Swin.*).

**H. 17. Everes.—The Tailed Cupids.** (**Plate 27.**).

Small; usually blue in the ♂. Below grey to white, spots as usual and with more or less prominent orange tornal spots unh.

1a (5a). Unh never a spot in 1 adjacent to the spot mid cell.

1b (4). Unf discal spots in a continuous line. ♂ blue above. Tailed.

1c (3). Below all spots black and equally prominent. Unh discal spot in 6 shifted in, not in line with the spots in 5 and 7. ♂ brown above.

1 (2). Unf discal spots all in line; unh discal spot 2-5 on an even arc. ♂ upf dark border under 2 mm.

α. ♀ uph with orange spots at tornus. ♂ upf border under 1mm.

*argiades diporides, Chap.* (20-25). The Tailed Cupid. Chitral—N. Burma.

β. ♀ uph no orange spots at tornus. Very variable, but in WSF spots are considerably larger below. ♂ upf border about 1½mm.

**argiades hellotia, Men.* (24-30). Sikkim, Bhutan. C.

2 (1). Unf discal spot in 2 shifted in; unh discal spots in 3-5 in a straight line, spot in 2 shifted in. ♂ above border over 2 mm and often a very prominent spot end cell. ♀ uph no orange spots at tornus. Unh orange spots more extensive and not sharply defined.

*dipora, M.* (22-26). The Dusky Blue Cupid. Kashmir—S. Shan States. NR.

3 (1c). Unh spot mid cell, the 2 costal spots in 7 and the spot in 1a on dorsum black, forming a contrast with the remaining spots, which are grey and hardly darker than the ground. Unf discal spots in line. Unh discal spot in 6 in line with the spots in 5 and 7 or very nearly so.

α. ♂ above border about 2 mm. ♀ with discal areas pale dull blue.

*parrhasius parrhasius, F.* (22-28). The Indian Cupid. Ceylon, S. India, NR.

β. ♂ above variable, usually much darker, with prominent black veins and broader border. ♀ usually uniform black, but Burmese specimens often have the disc blue.

*parrhasius assamica, Tyt.* Assam—Burma. NR. (= *rileyi, Godfrey*).

γ. Above as α. ♀ with discal areas above paler, often nearly white. Below discal markings obsolete or nearly so, never so prominent as the marginal markings.

*parrhasius pila, Evans.* (22-26). Andamans and Nicobars. NR.

4 (1b). Below discal bands much broken, broad and very black; unf a continuous upper band in 3-6 and a similar quite separate lower band in 1-2; unh discal band in 3 parts. Above ♂ ♀ uniform dark brown. Tailed.

**potanini, Alph.* (22-25). The Banded Cupid. N. Burma—Dawnas. R. (= *umbriel, Doh*).

5a (1a). Unh with a spot in 1 adjoining the spot mid cell. Above ♂ ♀ dark brown. Below markings more or less normal.

5 (6). Tailed. Unh with prominent orange markings at tornus. Below leaden grey, markings small, prominent, and of uniform size.

**kala, DeN.* (22-25). The Black Cupid. Nagas—S. Shan States. R.

6 (5). Tailless. Unh no orange markings at tornus. Below nearly white, markings H irregular and of unequal size.

**moorei, Leech.* (20-23). Moore's Cupid. Assam. VR.

**H. 18. Cupido.—The Cupids.**

♂ above dull blue, shading to a broad fuscous border; an obscure dark spot end cell F. ♀ plain brown. Below grey, spots minute and marginal spots obsolete; unh discal spot in 6 between spots in 5 and 7, spots 2-5 on an arc, obscure black tornal spots crowned metallic and orange.

*sebrus shandura, Evans.* (21-25). The Shandur Cupid. Chitral. R.

**H. 19. Bothrinia.—The Hedge Cupid.** (**Plate 27.**)

Resembles *Lycænopsis* very closely. ♂ above dull blue with a black bar end cell F, ♀ border rather narrow, dilated at apex F. Below grey; unf discal spots 1-5 in line, spot in 6 only slightly shifted in; unh spots small and regular, discal spot in 1 almost in line with spots in 1a and 2.

**chennelli, DeN.* (22-25). The Hedge Cupid. Assam—Karens. R.

**H. 20. Lycæneopsis—The Hedge Blues. (Plate 27.).**

♂ blue above, sometimes with white discal areas and a dark border of varying width. Below grey to white; spots as usual, but never any metallic or orange spots and no spot in cell F. Unf spot in 6 shifted in normally out of line with the rest of the discal spots and unh discal spot in 6 is shifted in out of line with the spots in 5 and 7.

1 (2a). Below white, no basal or cell spots, submarginal spots large and immediately preceded by the discal line. ♂ dark blue, border ½mm. widening at apex. ♀ dark brown with a well defined white band above.

*haraldus ananga, Fd.* (40–42). Felder's Hedge Blue. Victoria Point. VR.

2a (1). Below with basal markings H and spot end cell F and H.

2 (3a). Below white, marginal markings absent; spots on H very minute: discal spots on F very large, spots in 2 and 3 shifted out near the margin, no spot in 6. Above ♂ dusky blue, border 4 mm.; ♀ disc F white, H all dusky blue.

**vardhana, M.* (38–44). The Dusky Hedge Blue. Kashmir—Kumaon. NR.

3a (2). Below marginal markings present; unf discal spots in 2 and 3 not shifted out and markings on F and H of equal size.

3 (4a). Unf spot in 6 absent or, if present, in line with rest, spot in 1 shifted in; all markings very small. ♂ above violet blue, border 2 mm. Below grey marginal markings complete

*binghami, Chapman.* (30). Chapman's Hedge Blue. Assam—N. Burma. VR.

4a (3). Unf spot in 6 always present and much shifted in (except in DSF forms where all the spots tend to obsolescence).

4b (7a). Below submarginal lunules completely absent, marginal spots present. Unh no spot base 2.

4c (6). Unh discal spot in 4 not markedly different to the other spots. Unf discal spots 2–4 in line.

4 (5). Unf always discal spot in 1, which is shifted in. Below pale grey. Above dark blue, border a thread; ♀ violet blue with broad borders.

*lanka, M.* (27–32). The Ceylon Hedge Blue. Ceylon. R.

5 (4). Unf never a discal spot in 1. Below white, markings very small. Above white with broad dark costa and termen F; base and costa leaden blue in ♂, dark brown in ♀.

*akasa mavisa, Fruh.* (26–30). The White Hedge Blue. Ceylon, S. India. NR.

6 (4c). Unh discal spot in 4 oblique and elongated. Below white, usually a spot in 1 unf. ♂ above pale blue with a large white discal patch F and H; apex broadly dark brown, reducing to a thread at tornus F. ♀ dark brown with narrow white discal patch F and H.

**albocærulea, M.* (26–34). The Albocœrulean. Simla—Karens. R.

7a (4b). Below always at least traces of the submarginal lunules as well as of the marginal spots.

7b (11a). Unh always a spot base 2 anterior to the spot mid cell (present sometimes in Nos. 14 and 15). Unf always a discal spot in 1 and spot in 4 F and H more or less oblique.

7c (10). Unh discal spot in 7 not conspicuously larger than the remaining spots.

7 (8a). Unh discal spot in 6 midway between the spot in 5 and the bar end cell. Below pale grey and markings grey, except for the basal and costal spots H, which are black. ♂ above blue, border 1 mm.

*musina musinoides, Swin.* (26–30.) Swinhoe's Hedge Blue. Assam—Shan States. NR. (= *parrishii, Rhē Phil.*).

8a (7). Unh discal spot in 6 much nearer bar end cell.

8 (9). Below white and all markings dark brown; unh discal spot in 4 only slightly oblique and no longer than the spot in 2. ♂ above rather pale violet blue, border a thread.

*singalensis, Fd.* (34–39). The Singhalese Hedge Blue. Ceylon. R.

9 (8). Below pale grey; unh spot in 4 highly oblique, elongated and much longer than any other spot. ♂ above costa and termen broad dark brown, disc white and base dull blue; H dark brown with a narrow white discal patch and base dull leaden blue.

*dohertyi, Tyl.* (32). The Naga Hedge Blue. Nagas. VR.

**H. 20. Lycænopsis.—The Hedge Blues.** (Plate 27.)—(*contd.*)

10 (7c). Unh discal spot in 7 round, large, far more prominent than any other spot. Below pale grey, markings prominent. ♂ above bright shining blue, border 2 mm.; in DSF a white patch on disc F; ♀ with a broad, well defined straight edged white band on F and most of H is white in the DSF.

* *transpecta, M.* (28-36). The White-banded Hedge Blue. Sikkim—Burma, Nicobars. NR. (= *latimargo, M.*).

11a (7b). Unh no spot base 2 (except in individual of Nos. 14 and 15).

11b (19a). Below markings never so regular as in 18a and almost invariably a discal spot in 1 unf.

11 (13a). Unf discal spot in 7 large, far larger than any other spot.

11 (12). Unh discal spots in 4 and 5 midway between end cell and margin. Below white or very pale grey. ♂ above metallic blue, border 2 mm. ♀ black with a narrow white discal patch upf, inwardly bordered with dull blue scales.

α. Larger and paler blue; uph border continuous dark brown. Below markings fainter and more linear.

*melæna melænoides, Tyt.* (28). The Metallic Hedge Blue. Manipur. VR.

β. Smaller and darker; border uph may be broken into spots. Below markings larger and darker.

*melæna melæna, Doh* (24-26). Tavoy—S. Burma. R.

12 (11). Unh discal spots in 4 and 5 much nearer margin. Below chalky white, markings prominent. ♂ above metallic blue, border 4 mm. at apex F, 1 mm. elsewhere: upper discal white patch H. ♀ above large white discal areas.

*cossæa distanti. Fruh:* (28). The Chalky Hedge Blue. Mergui. VR.

13a (11). Unh discal spot in 7 not markedly larger than any other spot. ♀ with prominent white discal areas usually.

13b (15a). Unf upper edge vertical spot in 3 joins or is directed to the outer edge of the oblique or horizontal spot in 4.

13 (14). Unh spot in 7 linear. Below pale grey, submarginal marking faint. ♂ above rather dark shining blue, border 1 mm.; upf with 2 conjoined, sharply defined, white patches at bases 2 and 3 and a similar patch in 6 H.

*albidisca, M.* (32-38). The Whitedisc Hedge Blue. S. India. NR.

14 (13). Unh discal spot in 7 round. Below grey, markings large and coarse in DSF, narrow in WSF. ♂ above dark shining blue, border 2 mm. and a large white discal patch F and H.

*marginata, DeN.* (30-36). The Margined Hedge Blue. Kumaon—Karens. NR.

15a (13b). Unf discal spots in 3 and 4 never arranged as in 13b.

15b (17a). Unf discal spot in 2 highly oblique, pointing to spot end cell; spot in 4 also oblique and pointing to spot end cell, spot in 3 vertical and pointing to the centre of spot in 4. Below markings very coarse in DSF, narrower in WSF. Unh discal spot in 4 oblique and elongated and often a spot base 2. Sometimes unf there is an additional costal spot over spot in 6 and unh a spot at extreme base 7, present in no other species.

15 (16). Unf inner edges discal spots 2-5 very irregular. ♂ above shining blue.

α. ♂ above as β, darker and more uniform lavender blue: upf borders narrower.

*puspa lavendularis, M.* (28-35). The Common Hedge Blue. Ceylon. C.

β. ♂ above with prominent white patches in DSF; border F 1½mm, dilated at apex.

* *puspa gisca, Fruh.* (28-35). India, Burma. C. (= *artena, Fr.*).

γ. Intermediate between α and β.

*puspa telis, Fr.* Andamans.

δ. ♂ paler blue and no white patches. ♀ white areas very restricted and dusky.

*puspa cyanescens, DeN.* (27-32). Nicobars. NR.

16 (15). Unf inner edges of spots 2-5 on an even arc. ♂ shining blue, border 1-1½mm, dilated at apex, no white patches.

*lilacea, Hamp.* (29-32). Hampson's Hedge Blue. Ceylon. S. India. R.

17a (15b). Unf discal spot in 2 vertical or slightly oblique, pointing to spot in 6.

17 (18). Below grey; unf discal spot in 1 almost invariably present. ♂ above blue, border narrow.

**H. 20. Lycaenopsis.—The Hedge Blues. (Plate 27.)—(*contd.*)**

α. Below spots irregular; unf spot in 4 very oblique. ♂ upf border very narrow and not or very faintly dilated at apex. ♀ border narrow and no white patches.

*limbata amitra, Frwh.* (28–32). The Plain Hedge Blue. Ceylon. NR.

β. Below spots much more regular. ♂ above as last. ♀ with much broader borders.

*limbata limbata, M.* (28–32). S. India—Bengal. NR.

γ. Below markings broader, regular or irregular. ♂ upf border broader and always prominently dilated at apex.

*limbata placida, DeN.* (28–34). Sikkim—Burma. C. (= *victoria, Swin.*).

18 (17). Below white, markings small; unf spot in 1 present or absent. Unh spot in 4 usually oblique and elongate and spot in 3 minute or absent. ♂ above rather pale blue, border a thread, white discal patches present or absent.

* *cardia dilecta, M.* (28–32). The Pale Hedge Blue. Simla—Karens. NR.

19a (11b). Below pale grey, markings small and regular; unf never a discal spot in 1 and unh spot in 4 never more than very slightly oblique; spots in 2–5 unh on an even flat arc.

19 (20). Larger. ♂ above border very narrow and regular on F and H not dilated at apex.

α. Paler. Below markings smaller.

*huegelii huegelii, M.* (34–40). The Large Hedge Blue. Kashmir—Kumaon. C.

β. Much darker blue. Below markings larger and clearer.

*huegelii oreana, Swin.* (38–40). Bhutan to Assam to 8,000 feet. NR.

γ. As last, but smaller. Below markings small and more or less obsolete.

*huegelii oreoides, Evans.* (32–35). Sikkim—Assam, over 8,000 feet. R.

20 (19). ♂ above border dilated at apex. Smaller.

α. ♂ never with white patches above, border F 1 mm. Below white and markings black.

**argiolus cœlestina, Koll.* (25–32). The Hill Hedge Blue. Chitral—Kumaon. C. (= *kollari, Wd.* : *kasmira, M.* : *irita, Swin.*).

β. ♂ above with prominent discal white patches in DSF; border very variable, but usually much wider, 2mm. Below white to grey and markings may be black or grey.

*argiolus syrieana,* DeN. (28–34). Sikkim—Burma. C. (= *sikkima, M.* : *albocæruleoides, bothrioides, puspargiolus, Chap.*).

**H. 21. Chilades.—The Lime Blue. (Plate 27).**

Above blue. Below pale brown with large spots arranged as usual; unf with an additional costal spot in the angle formed by the junction of v9 with v7, always a spot in 1; unh always spot base 2 and the discal spot in 6 shifted in. In DSF unh there is a large clouded discal patch.

α. Smaller. ♂ above dark border linear. ♀ WSF dark brown, bases metallic blue; DSF rather pale blue with a broad border.

**laius laius, Cr.* (26–30). The Lime Blue. Ceylon, India, N. Burma—Moulmein. C. (= *kandura, varunana, M.*).

β. Larger. ♂ above dark border diffused inwards and uph with prominent marginal black spots. ♀ paler blue with broad borders. Below markings much darker and more pronounced; seasonal difference not nearly so marked.

*laius tavoyana, Evans.* (30–35). Tavoy. R.

**H. 22. Zizera.—The Grass Blues. (Plate 27).**

Small low flying insects. Below pale grey to brown; unh always a spot base 2 under spot mid cell.

1 (2a). ♂ ♀ above dark brown. Unh with a marginal row of jewelled metallic spots; basal and costal spots black, rest dark brown; unf no spot in cell or on costa internal to the discal band.

α. Uph dark marginal spots in ♂ faint and not orange crowned; below brown and jewelled spots not prominently orange crowned.

**trochilus putli, Koll.* (15–22). The Grass Jewel. Ceylon. S—NE. India. Burma. C.

β. H marginal spots prominently orange crowned above and below; paler below.

**H. 22. Zizera.—The Grass Blues. (Plate 27).—(*contd.*)**

*trochilus trochilus, Frey.* (15-20). NW. India. C.

2a (1). ♂ above blue.

2b (6). Unh no jewelled spots or orange markings.

2b (5). Unh discal spot in 6 midway between spots in 5 and 7, always a discal spot in 1.

2c (4). Unf with a spot in cell and a spot in 7 on costa between the discal spot in 6 and the spot end cell

2 (3). Larger. ♂ above pale blue, border broad. ♀ dark brown with more or less basal blue suffusion. Unf often small spot base 1.

*α.* Below markings small and on H nearly obsolete. ♂ above very pale silvery blue.

*maha ossa, Swin.* (26-30). The Pale Grass Blue. S—Central India. VC.

*β.* Below markings always more prominent. ♂ above usually darker and very variable.

*maha maha, Koll.* Kurram. Central—N. India. Burma. VC. (*= chandala, M. : diluta, Fd. : squalida, But.*).

3 (2). Small. ♂ above dark blue with broad borders. ♀ normally plain brown, but may have some basal blue suffusion. Below grey with the spots all small, black and well defined.

**lysimon, Hub.* (18-24). The Dark Grass Blue. Ceylon, India, Burma, Andamans. C. (*= karsandra, M. : mora, Swin.*).

4 (2c). Unf no spot in cell ; 2 small costal spots on either side of the spot end cell. Below white, markings all small, black and well defined ; marginal markings unusually sharp. ♂ above dark blue with a broad border ; ♀ plain brown.

*gaika, Trimen.* (16-24). The Tiny Grass Blue. Ceylon, India, Burma, Andamans. C.

5 (2b). Unh discal spot in 6 shifted in, not in line with spots in 5-7, no costal spots or spot in cell. ♂ above dark blue with broad borders ; ♀ brown with more or less basal blue suffusion.

*α.* Below spots prominent ; unf discal series very large.

*otis decreta, But.* (19-20). The Lesser Grass Blue. Ceylon. S—Central India. C.

*β.* Below spots small, often nearly obsolete ; spots unf never more prominent than the spots unh.

*otis otis, F.* (19-26). N. India—Burma, Andamans, Nicobars. C. (*= sangra, M. : indica, Mur. : dryina, Chap.*).

6 (2b). Unh 2 prominent jewelled black tornal spots also 2 prominent black costal spots and a spot in cell : remaining markings below grey, catenulated. ♂ above violet blue, very narrow, dusky border : ♀ brown.

*galba phiala, GG.* (20-24). The Persian Grass Blue. Idak, Waziristan. R.

**H. 23. Lycæna.—The True Blues. (Plate 27).**

Blue or dark brown above ; below various patterns, general arrangement of the spots being the same ; unh spot in 6 nearly always midway between 5-7 and usually a spot base 2.

1 (2a). Unh with a spot base 8. Below white with numerous very large black spots, which show through above ; unf with spot in cell and discal row curved in so that spot in 2 comes under spot end cell. Above white with broad dark brown border ; in ♂ the white area is suffused pale blue ; in ♀ blue only at base.

**atroguttata, Ob.* (44-48) The Great Spotted Blue. Naga-Chin Hills. R. (*= albida, Leech.*).

2a (1). Unh never a spot base 8 and never white above.

2b (12a). Unh discal spots black, not white.

2c (10a). Unh no basal green scaling or, if so, very faint and not sufficient to obscure the basal spots.

2 (3a). Unf with spot in cell and the cilia prominently chequered. Unh marginal spots prominently orange crown. Above ♂ pale to rather dusky blue with a more or less broad border ; prominent bars end cells. ♀ brown.

**baton cashmirensis, M.* (27-31). The Kashmir Blue. Chitral-Kashmir and Ladak. NR. (*= hylas, Auct. : vicrama, M.*).

3a (2). Unf never a spot in cell and cilia unchequered.

3b (7a). Unf with metallic spots on margin.

**H. 23. Lycæna.—The True Blues.** (Plate 27).—(*contd.*)

3 (4a). Unh small metallic spots along entire margin and marginal spots F and H faintly orange crowned; unf discal spots large, unh small and regular. Above ♂ dull violet blue, border narrow; ♀ brown with basal blue suffusion.

**christophi samudra*, *M.* (30–34). The Small Jewel Blue. Baluchistan, Chitral, Kashmir. R. (= *bracteata*, *But.*).

4a (3). Unh metallic spots confined to tornus.

4 (5a). Below complete row large orange marginal spots, only faint traces of a metallic spot in 2 near tornus H; discal spots, very regular and nearer margin than usual; unh spot in 1 not shifted out of line as usual. Above ♂ violet blue, border linear, with orange spots at tornus H; ♀ brown with orange marginal spots at tornus F and H.

**pylaon indica*, *Evans.* (29–31). The Baluchi Jewel Blue. Baluchistan. R. (Compared with *pylaon*, *Fisch*, from S. E. Russia, the spots below are more regular and the tornal orange markings are reduced. This race also occurs in W. Tibet.)

5a (4). Below only orange at tornus H, crowning prominent metallic scales in 1 and 2; unf discal spot in 2 shifted in under spot end cell.

5 (6). ♂ above blue with rather broad dark border; ♀ brown with prominent orange tornal spots H and often with a postdiscal row of white spots F and H. Below all spots large and prominent; unf discal spot in 2 elongated; submarginal lunules coalesced to a broad dusky band; tornal metallic and orange spots H large and prominent.

α. upf borders narrow.

*loewii chamanica*, *M.* (32–36). The large Jewel Blue. Baluchistan. NR.

β. upf dark borders broad.

**loewii sanoga*, Evans. Chitral—Ladak. NR.

6 (5). ♂ ♀ above very dark bronzy brown, prominent spot end cell F. Below discal markings prominent, marginal small and fainter.

**iris ashretha*, *Evans.* (25–29) The Chitral Jewel Blue. Chitral. NR. (Darker than true *iris* from C. Asia).

7a (3b). Unh no metallic spots.

7b (9). Below no orange submarginal spots.

7 (8). Unf and unh discal spot in 3 markedly shifted out of line towards margin. Below discal markings prominent, marginal faint. Above ♂ rather pale blue, diffused, rather narrow border and upf discal spots showing as well as spot end cell; ♀ brown, upf discal spots show faintly.

**cytis*, *Lang.* (24–26). The Shandur Spotted Blue. Chitral. R.

8 (7). Unf and unh discal spots regular; marginal markings prominent. Unf coppery brown; unh white. Above ♂ ♀ dark brown with black spot end cell upf.

*astorica*, *Tyt.* (29–31). The Astor Argus. Astor. R.

9 (7b). Below complete prominent row submarginal orange spots, which appear above, complete in the ♀, more or less so in the ♂. Above ♂ ♀ dark brown with a black spot end cell upf. Unf discal spot in two shifted in under spot end cell; unh discal spot in 6 shifted in and adjoining spot in 7.

**astrarche*, *Berg.* (25–30). The Orange Bordered Argus. Chitral-Kumaon. C. (= *medon*, *Auct.*: *nazira*, *M.*).

10a (2c). Unh with prominent basal green sealing, which obscures the basal spots.

10 (11). Unh marginal spots more or less orange crowned; marginal markings faint on F. Unf and unh discal spots very regular; unh discal spot in 2 in line with the rest. Unh bar end cell triangular and prominently white edged, often with a prominent white streak thence to mid termen. Very variable and in some specimens the discal spots below are completely absent. Above ♂ ♀ unmarked dark brown.

*eumedon antiqua*, *Stg.* (28–32). The Chitral Argus. Chitral—Gilgit R. (= *jermyni*, *Swin.*),

11 (10). Unh marginal markings obsolete; all discal spots below small and regular, becoming obsolete towards tornus F and H. Above ♂ dull violet blue with very broad borders. Unh spot end cell nearly white.

*semiargus annulata*, *Elwes.* (28–32). The Dull Chumbi Blue. Chumbi. R.

12a (2b). Unh discal spots, if present, white: marginal markings absent.

12b (16a). Unh with metallic green sealing extending to termen or at least

**H. 23. Lycæna.—The True Blues.** (Plate 27).—(*contd.*)

well beyond discal band. Unf discal spots nearly always black and all marginal markings F and H absent.

12 (13a). Above ♂ ♀ dark brown ; unh no discal spots and with more or less metallic spots at tornus.

*younghusbandi, El.* (28-30). The Chumbi Green Underwing. Chumbi. R.

13a (12). Above ♂ blue ; unh with white discal spots as a rule.

13 (14-15). Above ♂ rather pale blue, with sharply defined dark border, 2 mm. ; ♀ plain brown. Unf grey.

*metallica, Fd.* (26-30). The Small Green Underwing. Chitral—Ladak. R.

14 (13-15). ♂ above dusky violet blue shading to a broad dark border, 4mm ; on H blue colour usually confined to the base. ♀ plain brown. Unf much darker, brown not grey.

**omphisa, M.* (30-32). The Dusky Green Underwing. Kashmir, Ladak—Lahoul. R.

15 (13-14). ♂ above violet blue, border not over 2 mm. Larger.

α. ♂ above dark border 1 mm. increasing to 2 mm. at tornus F and on H ; ♀ above sometimes plain brown. Unf diffused submarginal dark patches above tornus.

*galathea chitralica, Evans.* (34-39). The Large Green Underwing. Chitral. NR.

β. ♂ above dark border 1 mm., even throughout. ♀ brown with large orange marginal spots above tornus F and H. Unf the discal spots are sometimes white.

*galathea galathea, Blanch.* (32-37). Kashmir—Kumaon. NR. (= *nycula*, M.).

16a (12b). Unh metallic green scaling basal or absent.

16a (18). Upf never spot end cell. 16 (17) ; Above violet blue, ♀ brown with rarely any blue scaling at base Below very variable, more so than any other Lycæna. Unf pale grey, a spot end cell and a regular discal row which are usually black but may be white, only rarely a spot in 1. Unh varying from entirely greenish white to entirely brown or may be centrally brown and rest greenish white, metallic green suffusion present or absent. Unh the spotting equally variable ; usually spots large and white, but may rarely be small and black ; typically with a straight discal row 2-5 pointing to apex, conjoined discal spot 6-7, basal spot in 7, spot end cell and mid cell usually conjoined ; rarely the spot in 6 is central between spot in 5-7 ; sometimes spots very enlarged, sometimes entirely absent.

α. Rather smaller and paler.

*pheretes lehana, M.* (24-28). The Mountain Blue. Chitral—Kumaon, over 12,000 feet. NR.

β. Rather larger and darker.

* *pheretes pharis, Faw.* Sikkim. NR.

17 (16). Above shining sky-blue, with very rarely prominently chequered cilia.

*asiatica, Elwes.* The Sikkim Mountain Blue. Sikkim. NR.

18 (16b). Upf with a prominent spot end cell.

α. Above without any discal white spots (sometimes obscure in ♀). ♂ greenish blue with a broad border 2 mm. ; ♀ plain brown. Unf grey with a prominent black spot in cell, discal row curved bringing spot in 2 under cell spot and always a spot in 1. Unh outer third white, central third brown, base more or less metallic green ; large white spot end cell, conjoined spot 6-7 (rarely with black centres), rarely small black spot base 1 ; rarely a discal row of conjoined white spots is perceptible as separate from the white margin.

**orbitulus walli, Evans.* (28-30). The Greenish Mountain Blue. Chitral. R.

β. Above with a more or less complete series of prominent white discal spots F and H and always a black centred white spot end cell F and usually H ; dark brown, overlaid with greenish blue scales from the base outwards of varying extent, less extensive in ♀ or absent. Below as last, but unf spots more regular and often more or less obsolete ; unh as last, but all spots entirely white and larger ; discal spots in 6-7 usually united to the white border.

*orbitulus jaloka, M.* (25-29). Kashmir. R. (= *ellisi, Mar.*).

γ. As last, but upf with a white spot end cell.

[illegible]*z, DeN.* Ladak, Pangi. R.

**H. 24. Polyommatus.—The Meadow Blues. (Plate 127.)**

Close allies of *Lycæna*. ♂ above always blue. Below spots black and white ringed. Unh nearly always a spot base 2, discal spot in 1 in line with spots in 1a and 2 and discal spot in 6 central between spots in 5–7.

1a (3a) Unf with a spot in cell and another often below it in 1; may be absent in specimens with ill-developed spots. Usually with orange marginal spots below, never any metallic spots.

1 (2). ♂ above uniform lilac blue, border linear, blue colour never shades to border nor are veins darkened before reaching it; never a black spot end cell F. ♀ very variable, from plain brown to dusky blue with broad borders and marginal orange spots. Unf discal spots 4, 5 and 6 on a curve. Unh spot in 6 usually rather nearer to spot in 5.

α. Above bright lilac blue. Below spots very small and uniform, no white patches H.

* *icarus fugitiva But.* (30–32). The Violet Meadow Blue. Baluchistan. C. (= *persica, Auct.*).

β. Above duller. Below more variable, marginal orange spots better developed and sometimes traces of white patches H.

*icarus chitralensis, Swin.* (30–36). Chitral. C.

2 (1). ♂ above very variable, border variable, often diffused and veins always slightly blackish just before the border. ♀ more constant, rarely any blue above and large orange submarginal spots usually well developed. Unf spots in 4, 5 and 6 in a straight line or nearly so. Unh spot in 6 usually nearer spot in 7.

α. ♂ above very pale silvery blue, border a thread. Below markings small, marginal orange spots nearly obsolete, no white patches H.

*eros bilucha, M.* (28–34). The Common Meadow Blue. Baluchistan. R.

β. ♂ above as last, but border broader, 1 mm. Below orange spots very large, but rather pale, no white patches H.

*eros drunala, Swin.* (28–34). Rasmak. Safed Koh. NR.

γ. ♂ above more lilac blue and dusky borders more or less diffused, 1½-2 mm; usually a spot end cell F and traces of marginal spots H. Below variable, marginal orange spots small, but dark, white patches usually prominent on H. Varies a good deal with the season and the elevation.

*eros droshana, Evans.* (32–40). Chitral. NR.

δ. Small, ♂ above pale violet blue, border narrow, 1 mm., slightly diffused. Below markings small and tending to obsolescence, white patches H prominent.

*eros stoliczana, Fd.* (30–34). Ladak. NR.

η. ♂ spring from brilliant violet blue, summer form pale shining blue, border 1 mm.; very much as β but larger. Below as γ.

**eros pseuderos, M.* (32–35). Kashmir, Murree. NR.

ξ. ♂ above bright metallic blue, border F 1½ mm. Below grey, marginal orange markings nearly or quite obsolete and white markings prominent, especially the white transverse streak from base to mid termen H.

*eros ariana, M.* (38). Kangra, Kulu, Spiti to Kumaon. NR. (= *sutleja, M*).

ε. ♂ varying from pale lilac blue with narrow margins and obsolescent markings below to a rather deep brilliant blue with black marginal spots uph and below chalky white with prominent large submarginal orange spots. ♀ variable.

*eros arene, Fawcett.* (30–35). Chumbi Valley, Bhutan NR.

3a (1a). Unf no spot in cell or in 1 below cell.

3b (5a). Unh basal spots absent except for that in 7 and the spot mid cell may be traceable. Above unmarked and border a thread.

3 (4). Below marginal markings prominent and on H crowned orange; unf submarginal spots conjoined to a broad dusky band, marginal spots absent, discal spots curved round so that spot in 2 comes under spot end cell, spot in 6 shifted in and no spot in 1. Unh spot in 6 central between spots in 5–7, spots 2–5 on an arc, spot on 1 shifted out and spot in 1a absent. Above ♂ pale silvery blue, border a thread. Apex F pointed.

*poseidon poseidonides, Stg.* (40). The Silvery Meadow Blue. Baroghil Pass, Chitral. R.

4 (3). Below marginal markings entirely absent; uniform very pale grey brown. Unf discal spots in a nearly straight line, getting nearer margin at

**H. 24. Polyommatus.—The Meadow Blues.—(Plate 127).—(*contd.*)**

lower end, spot in 1 present, double. Unh spot in 6 slightly shifted in and nearer spot in 7, spots 2–5 on an arc, double spot in 1 and spot in 1a shifted out, close together. Above ♂ shining lilac blue, border a thread. Wings broad.

*iolas, Ochs.* (38). The Gilgit Meadow Blue. Gilgit. VR.

5a (3b). Unh the row of 4 basal spots prominent. Below all spots large, never any orange submarginal spots, F, usually present on H and often metallic spots at tornus.

5 (6). Unh discal spot in 6 much nearer spot in 7 than spot in 5; basal row 4 spots not quite in line, that in 1 slightly shifted in; marginal orange spots obsolete. Unf discal spot in 1 present or absent. Upf prominent spot end cell.

α. Above ♂ rather dull blue, border 1–2 mm, on H broken into large marginal spots.

*devanica gracilis, Evans.* (24–30) The Dusky Meadow Blue. N. Chitral. R.

β. Above ♂ bases only dusky blue, border 4 mm. or more, the blue colour often extending through cell and along costa to apex.

*devanica devanica, M.* (30–34). Chitral, Kashmir. Ladak. R.

6 (5). Unh discal spots in 6 central between spots in 5–7; basal 4 spots in line, marginal orange spots more or less well developed.

α. ♂ above bright blue, border very narrow, marginal spots H. Upf no spot end cell and unf no spot in 1. ♀ above with very large submarginal orange spots F and H and black marginal spots H; on F the orange colouring sometimes spreads to the disc.

* *sarta sartoides, Swin.* (35–38). The Brilliant Meadow Blue. Chitral. R.

β. ♂ above dull dusky blue evenly extended to the dark brown border. Upf with spot end cell; unf with discal spot in 1. ♀ varying from plain brown to an approach to last with submarginal orange spots appearing above.

*sarta rupala, Tyt.* (32–36). Astor. R.

**H. 25. Una.—The Una. (Plate 27).**

Above ♂ dark purple brown, border narrow; ♀ sky blue upf with broad borders and uph pale brown with blue scales at the base. Below pale ochreous brown of a peculiar shade, bearing small black spots arranged as usual, marginal markings obsolete; small double spot in cell F, no spot in cell H; the 2 costal spots H more prominent than the rest; all spots tend to obsolescence.

* *usta, Dist.* (24–27). The Una. Assam—Dawnas. R.

**H. 26. Orthomiella.—The Straightwing Blue. (Plate 27).**

Above ♂ dark shining purple, border a thread, cilia chequered and elongated at tornus H; ♀ shining blue, border broad. Below brown with dark catenulated spots arranged as usual; marginal markings nearly obsolete; unf a spot in cell and in 1 below it; unh dorsal half from base to discal band darkened, covering all the markings.

* *pontis pontis, Elwes.* (28–32). The Straightwing Blue. Sikkim—Assam. R.

β. Smaller. Wings more pointed. Browner above and yellower below.

*pontis rovorea, Fr* N. Burma. VR. (Fr.).

**H. 27. Syntarucus.—The Zebra Blue. (Plate 27).**

Above ♂ violet blue; ♀ base blue with a white discal area F bearing black spots. Below with alternate broad and narrow bands at right angles to the costa, broken into spots on H. Markings variable and irregular, but quite different to any other species. Unh metallic spots at tornus.

* *plinius, F.* (22–30). The Zebra Blue. Ceylon, India, Burma. C.

**H. 28. Catachrysops.—The Forgetmenot. (Plate 27).**

Above pale blue, border narrow. Below pale grey with catenulated band; unf the discal band broken into 2 portions and at the upper end there is a small spot on the costa internal to the band. Unh a single very large orange crowned spot at tornus.

1 (2). Unf spot on costa midway between spot end cell and the discal band. Above ♂ violet blue. Below bands narrow and more catenulated.

**H. 28. Catachrysops.—The Forgetmenot. (Plate 27).—(*contd.*)**

* ***strabo***, *F.* (25-35). The Forgetmenot. Ceylon, India, Burma, Andamans, Nicobars. C.

2 (1). Unf spot on costa adjoins upper end of discal band. Above ♂ pale silvery blue. Below markings paler, broader, straighter and more confluent.

***lithargyria***, *M.* (25-35). The Silver Forgetmenot. Ceylon, Assam—Burma, Andamans. NR.

**H. 29. Lampides.—The Peablue (Plate 27).**

Above ♂ violet blue, frosted over. Below pale brown, marked with fasciæ, no spots, except for 2 black ones crowned orange and metallic at tornus H; marginal lunules F and H; unf with a short fascia in cell, end cell and a discal band: unh basal band, fascia end cell, discal band and a white band beyond.

* ***bæticus***, *L.* (24-36). The Peablue. Ceylon, India, Burma, Andamans, Nicobars. VC.

*v.* ***obsoleta***, *Evans.* Except for the tornal spots H all the marginal markings F and H are absent. Andamans. NR.

**H. 30. Nacaduba.—The Lineblues. (Plate 27).**

Dark blue with borders linear in ♂; above and below brown with a number of parallel whitish lines. ♀♀ discally pale blue or white with broad dark borders.

1a (a). Unf no pale basal lines, only a pair end cell and a discal pair in addition to the marginal markings.

1(2a). Unh prominent round black spot at apex, ♂ upf purple blue with a more or less prominent diffused discal white patch on F. ♀ white. Below white, the 2 submarginal rows of dark linear spots prominent, other markings pale brown and obsolescent.

* ***angusta kerriana***, *Dist.* (32-35). The White Lineblue. Karens—S Burma. R.

2a (1). Unh no prominent apical black spot. Below brown with white lines discal markings prominent, submarginal not more prominent. ♀♀ pale blue or violet.

2b (5). Unf outer discal line does not meet inner submarginal line at v3. Above lines from below not showing through by transparency.

2 (3a). Unf inner submarginal line broad, diffused and continuous, all marking broad and yellowish. Unh inner submarginal line consists of broad, straight strigæ. Above ♂ dark purple brown, paler in a side light, border narrow, but not thread-like. ♀ variable, purple blue, paling outwardly. Wings broad, rounded.

α. Below markings narrower and paler; unf inner submarginal line becomes obsolete towards apex.

***pactolus ceylonicus***, *Fruh.* (34-38). The Large 4 Lineblue. Ceylon. R.

β. Below markings wider and inner submarginal line unf even.

* ***pactolus continentalis***, *Fruh.* Sikkim-Burma. NR.

γ. Below darker, markings broad and sharp; unf inner submarginal line not broader than the rest.

***pactolus andamanica***. *Fruh.* Andamans. NR.

δ. Smaller. Above more plumbeous. Below markings narrow pale and rather obscure.

***pactolus macropthalma***, *Fd.* (32-35). Nicobars. NR.

3a (2). Unf and unh inner submarginal line consists of narrow, separate lunules; all markings narrow, more discontinuous and whiter. Wings produced at apex F and tornus H.

3 (4). ♂ above rather plumbeous blue, violet in a side light. Unf the upper edges of the inner submarginal and outer discal lines are close together.

***hermus nabo***, *Fruh.* (30-35). The Pale 4 Lineblue. Ceylon. S. India. Sikkim. Burma. NR.

*v.* ***sidona***, *Fruh.* Unh the upper discal area darkened, obscuring the line. NR.

4 (3). ♂ above dark shining violet, no plumbeous tinge. Unf upper edges of the inner submarginal and outer discal lines separate.

* ***vajuva***, *Fruh.* (30-35). The Violet 4 Lineblue. Sikkim—Burma. NR.

5 (2b). Unf outer discal line meets inner submarginal line at v3, appearing as a continuous line from costa to dorsum. Below submarginal lines appear

**H. 30 Nacaduba.—The Lineblues. (Plate 27.)—(*contd.*)**

to enclose 2 rows of prominent dark spots ; pale brown, markings rather broad, white and continuous. ♂ above pale blue, lines from below showing through by transparency. Much smaller ; wings broad and very rounded.

* ***pavana***, *Hors.* (26–28). The Small 4 Lineblue. Tavoy—S. Burma. Andamans. R.

6a (1a). Unf an additional pair of lines in cell near base.

6 (7a). Uph and unh 2 prominent black spots at tornus, prominently orange crowned below. Below pale grey, markings wide, submarginal lines highly lunulate. Unf basal pair of lines usually to vl. ♂ above rather pale blue. Tailed.

* ***ancyra***, *Fd.* (27–29). Felder's Lineblue. Karens—S. Burma. Nicobars. R. (= *aberrans*, *El.*).

7a (6). ♂ uph no tornal black spots or only showing through by transparency ; ♀ a single spot. Unh usually only black spot in 2 prominent, the orange crown faint and narrow.

7 (8a). ♂ apex F produced and pointed, termen straight from apex. ♂ ♀ H produced and termen straight. Tailed. Below lines pale brown and no darkening of the ground between lines ; unf basal pair to vl.

α. ♂ above dark shining violet blue. ♀ plain brown, no blue ; prominent black spot at tornus H and obscure submarginal white spots above. Below rather pale ochreous brown.

***viola viola***, *M.* (22–25). The Pointed Lineblue. Ceylon. S. India. R.

β. As last, but below plain brown, no ochreous tinge. ♀ smalt blue, broad borders or plain brown.

* ***viola merguiana***, *M.* Sikkim—Burma. Andamans. NR.

8a (7). ♂ apex F may be produced, but the termen is rounded at least at the apex.

8b (15a). H always tailed.

8c (12a). Unf discal lines on either side of v3 more or less straight and the spaces between not darker than the ground (except sometimes in the DSF of No. 8).

8d (10a). Wings produced, termen F straight or nearly so.

8 (9). ♂ above rather pale violet blue, markings from below showing through by transparency (except in Nicobar specimens) ; discs not clothed with short fine hairs (visible with a hand lens). Below all markings prominent, white. Unf markings regular, continuous and straight, submarginal lines not lunular. Unh markings very broken the usual dorsal Y, formed by the discal lines and the lines end cell, barely traceable due to the inner discal line in 3 meeting the outer line end cell ; discal line in 4 separate from the line end cell. ♀ above bases pale metallic blue, disc F whitish, but never any white spots on the inner edge of the dark border in 1-3 ; below markings much broader and in DSF often filled in darker forming bands.

α. Below ♂ markings broad, a distinct central whitish line showing between each pair of lines.

* ***atrata prominens***, *M.* (28–32). The Transparent 6 Lineblue. Ceylon. C. (= *kurava*, *M.*).

β. Below markings narrower.

***atrata euplea***, *Fruh.* S. India. Sikkim—Burma. Andamans, Nicobars. C.

9 (8). ♂ above dark opaque shining violet blue ; discs clothed with short white hairs. Below all markings much duller and narrow, more bent on F, but on H the dorsal Y is much easier to trace. ♀ disc upf metallic blue, no white, but traces of whitish spots in 1-3.

***akaba gythion***, *Fruh.* (27–31). The Opaque 6 Lineblue. Ceylon. S. India. Sikkim-Burma. Andamans. C.

10a (8d). Wings rounded, termen F highly convex ; discs above covered with fine white hairs.

10 (11). ♂ above pale violet blue, all markings show through by transparency and ground colour darkens towards termen. Below markings very broad and white ; unf submarginal markings highly lunulate. ♀ bases pale milky blue, discs white, whitish spots in 1-3 F. Occurs in a dwarf form, as well as the normal form.

***sinhala***, *Ormiston.* (18–30) The Ceylon 6 Lineblue. Ceylon. C.

11 (10). ♂ above dark violet blue, opaque. Below markings very dull and narrow ; submarginal markings F lunulate ; H dorsal Y prominent and

**H. 30. Nacaduba.—The Lineblues. (Plate 27.)**—*(contd.)*

inner discal line joins outer line end cell at their lower ends. ♀ disc upf and base H violet blue.

*berenice ceylonica. Fruh.* (22-30). The Rounded 6 Lineblue. Ceylon. NR.

β. Darker.

*berenice plumbeomicans, WM. and DeN.* (22-30). Tavoy—S. Burma Andamans. R.

γ. ♂ above much darker purple brown. Below markings very dull and tornal ocellus H unusually large.

*berenice nicobaricus, WM. and DeN.* (24-30). Nicobars. R.

12a (8c). Unf discal lines on either side of v3 very irregular, especially the outer upper discal line and spaces between usually filled in as dark bands.

12 (13a). Below rather dark brown, bands F broad and nearly black; H. basal bands black, discal band and band end cell coalesced to form a large black discal area. ♂ above pale shining violet blue, with a broader border, 1 mm. than any other *Nacaduba*. ♂ upf lower discal area and base H pale metallic blue.

**aluta coelestis, DeN.* (23-25). The Banded Lineblue. Kumaon—N. Burma Andamans. R.

13a (12). Below bands narrow, only a little darker than the ground. ♂ above dark purple blue or purple brown with very narrow border. Below pale to dark brown with or without an ochreous tinge of varying intensity. ♀ plain brown, sometimes with a bluish lower discal patch F.

13 (14). Unf basal band confined to cell; discal band not below v2 or sometimes there is a dot in 1.

*bhutea, DeN.* (25-28). The Bhutya Lineblue. Sikkim—Assam. Karens. NR.

14 (13). Unf discal band continued at full width to v1 and basal band reaches v1 except in faintly marked specimens. Below very variable; may be dark brown with white lines to yellow or grey with dark bands.

**nora, Fd.* (18-25.) The Common Lineblue. Ceylon, India, Burma. Andamans C. (= *ardates, M : dima, Rhē Phil. : kodi, Evans.*).

15a (8b). H tailless.

15b (18). Unf base not darkened.

15c (17). ♂ above dark purple Below bands darker than the ground; unh tornal spot in 2 larger, than the spot in 1.

15 (16). Cilia uniform brown throughout. Very like No. 13.

α. Seasonal forms very alike; below brown, bands only slighly darker than the ground, very irregular on F. ♀ brown, base F blue or violet blue more or less. Unf basal band to v1.

*dubiosa indica, Evans.* (22-26). The Tailless Lineblue. Ceylon, India, C.

β. WSF as last. DSF ♀ below pale ochreous with dark bands and on H prominent marginal spots increasing in size to costa, spot at apex being as large as the tornal spot in 2; unf basal band not to v1; above plain dark brown, traces of blue scales at base F.

*dubiosa sivoka, Evans.* (22-26). Sikkim—Burma. C.

γ. As last, but DSF ♀ below bright yellow and marginal spots H absent.

*dubiosa fulva, Evans.* (22-26). Andamans. C.

(*dubiosa, Snell*, is from N. Australia and is the oldest name for what is usually called the tailless form of *ardates, M.= nora*).

16 (15). F cilia white at apex. Unf basal band not below mv. Below as No. 15a.

α. Small and faintly marked below.

*noreia noreia, Fd.* (22-25). The White-tipped Lineblue. Ceylon, N. Burma. R.

β. Larger and more prominently marked below.

*noreia hampsoni, DeN.* (26-28). S. India—Mussoorie. R. (= *topa, Evans.*).

17 (15c). ♂ above rather pale dull violet blue, border linear. Below pale brown, bands not darker than the ground, white lines faint; F basal lines confined to cell; discal band does not extend below v2 or there is a much narrower spot in 1 set against the outer edge of the spot in 2; H tornal spots in 1a and 2 small and equal. ♀ plain brown, may have whitish discal area F.

**dana, DeN.* (24-28). The Dingy Lineblue. Ceylon. S. India. Kumaon—Burma, Andamans. NR.

18 (15b) Unf basal ⅓ black. Otherwise very like *bhutea*.

*ni, DeN.* (26). De Niceville's Lineblue. Karens—S. Burma. R.

**H. 31. Jamides.—The Ceruleans. (Plate 27).**

Above from milky white to deep metallic blue. Below brown with parallel white lines, filled in between as bands in the DSF forms of some species. Unf no basal lines. ♀ with broad dark border and apex F and marginal spots H.

1a (7a). Unf upper outer discal line to v3; lower outer discal line more or less joins inner upper discal line.

1b (3a). Unf upper discal lines bent in at v6. Unh discal lines broken at every vein.

1 (2). Below ochreous brown or brown, inner submarginal line not lunulate, markings dull and narrow. ♂ above brilliant dark metallic blue, border and apex F broadly black, H border narrow; borders narrower in DSF. ♀ non-metallic blue.

α. ♂ upf costa black.

*bochus bochus, Cr.* (25–34). The Dark Cerulean. Ceylon, India, Burma, Andamans. C. (= *plato, F.; nava, Fr.*).

β. ♂ upf costa blue, at least at base.

*bochus nicobaricus, WM. and DeN.* Nicobars NR.

2 (1). Below dark grey, inner submarginal line highly lunulate; markings white and prominent. ♂ above rather dark shining blue, border 1 mm., even width. ♀ pale blue.

*coruscans, M.* (27–35). The Ceylon Cerulean. Ceylon. R.

3a (1b). Unf upper discal lines not bent in at v6, but may be broken at vs. 4 and 6; unh markings more continuous.

3b (5a). Unf no white dashes on costa internal to the discal lines.

3 (4). Unh orange crown to tornal spot narrow, half the width of the spot. Below grey markings wide. ♂ above very pale shining metallic blue, border a thread; ♀ nearly white.

*lacteata, DeN.* (28–40). The Milky Cerulean. Ceylon. R.

4 (3). Unh orange crown to tornal spot very large, twice the width of the spot. Below dark grey, markings narrow, prominent, very straight and regular. ♂ rather pale shining blue, border a thread. ♀ pale blue; uph marginal spots very prominent and inner dark border to them very lunulate.

*philatus subdita, M.* (28–35). The Burmese Cerulean. S. Burma. NR.

5a (3b). Unf always 2 or 3 white costal dashes internal to the discal lines above lines end cell. Seasonal forms well marked. WSF with white lines on a dark grey or brown ground as usual. DSF filled in dark between pairs of lines, forming, broad bands, which on H may be darkened over making them indistinct, while on F the disc between the bands is more or less white. ♂ above very pale bluish white; ♀ similar with broad dark border and apex F.

5 (6). ♂ upf border a thread and not dilated at apex; more metallic and shining. A forest insect, not found in the open as next.

*cleodus pura, M.* (27-38). The White Cerulean. Assam-Burma. R. (= *alocina, Swin.*).

6 (5). ♂ upf border a thread at tornus, gradually widening to 1 mm. at apex.

α. ♂ above bluer and darker; uph with submarginal spots.

*celeno tissama, Fruh.* (27–35). The Common Cerulean. Ceylon. C.

β. Above whiter; uph no submarginal spots.

**celeno celeno, Cr.* (27–40). India, Burma. C. (= *ælianus, F.: alexis, Auct: conferenda, But.*).

γ. Above as last; uph with submarginal spots. No DSF.

*celeno blairana, Evans.* (27–35). Andamans. C.

δ. ♂ above with an inner fuscous border.

*celeno kinkurka, Fd.* (27–32). Kar Nicobar.

η. ♂ above entirely overlaid fuscous scales, leaving only a narrow pale submarginal fascia. Larger.

*celeno nicevillei, Evans.* (30–37). Great Nicobar and Kondul. NR.

7a (1a). Unf upper outer discal line ends at v 4; lower discal lines join the lines at end cell; upper discal lines angled, broken or in at v6; inner upper discal line to v3. ♀ pale blue.

7 (8a). ♂ uph a complete submarginal row of flat spots separated from the marginal line by a white line bordering each spot. Apex F more or less produced, more so in DSF than WSF.

α. As next, but uph border more marked.

*elpis meilichius, Fruh.* (30–40). The Metallic Cerulean. Ceylon. C.

β. ♂ uph border broad, 1 mm., slightly increasing to apex and slightly diffuse

**H. 31. Jamides. The Cerulcans. (Plate 27).—(*contd.*)**

more especially at apex; rather narrower and less diffuse in DSF. Above pale shining blue, transparent in WSF, milkier and opaque in DSF. Below WSF grey to brown; DSF pale ochreous brown.

**elpis eurysaces, Fruh.* (30-44). S. India. Sikkim-Burma. Andamans. C. (= *ozea, Fr.*: *chinee, Tyl.*).

γ. ♂ upf dark terminal line preceded by fuscous strigæ outwardly resting on an obsolete whitish line. ♂ above slightly shining bluish white.

*elpis kondulana, Fd.* (40). Nicobars. R.

8a (7). ♂ uph no submarginal markings except at tornus, where there may be traces of spots in 1a-2, border a thread. Below pale greyish brown to brown, markings very narrow and sharp.

8 (9a). ♂ upf border a thread, slightly thicker than the border H. Above pale shining blue, darkening towards costa and apex F, where it is opaque, elsewhere transparent. Wings rounded, termen F more or less convex.

α. Larger, paler.

*kankena pseudelpis, But.* (28-36). The Glistening Cerulean. Sikkim-Burma. Andamans. NR. (= *atina, crocularia, paliassa, Fr.*).

β. Smaller. Darker metallic blue, opaque.

*kankena kankena, Fd.* (28-32). Nicobars. NR. (= *rogersi, Bing.*).

9a (8). ♂ upf border 1 mm. increasing to 2 mm. at apex.

9 (10). Above brilliant shining sky blue, darker than in the last two and everywhere opaque. Below darker than in last. Wings rounded and termen convex.

*cærulea, Druce* (32-35). Assam-Burma. The Royal Cerulean. R. (= *bochides, DeN*).

10 (9). Upf border diffused. Above dusky purple blue. Wings produced and termen straight.

*cunilda purpura*, Evans. (35). The Dusky Cerulean. S. Burma. R.

**H. 32. Azanus. The Babul Blues. (Plate 27).**

Small blues with catenulated spots below. Unh prominent black tornal spots in 1a and 2; basal and costal spots also black.

1a (4). Unf no spot in cell.

1 (2-3). ♂ above bright lilac blue, the scales modified in the centre of the disc F, where the blue colour appears darker, borders broad increasing at apex F and H. Below markings well developed. ♀ brown, no blue at base. Unh a basal costal brown streak.

**ubaldus, Cr.* (20-25). The Bright Babul Blue. Ceylon, India, N. Burma. C. (= *zena, M.*).

2 (1-3). ♂ duller violet blue, more uniform, area with modified scales present, but inconspicuous. ♀ blue at bases. Below usually markings faint.

*uranus, But.* (20-25). The Dull Babul Blue. India. C.

3 (1-2). As No 2, but with broad dusky borders and darker below. Unh, no basal costal streak.

*urios, Ril.* (28). The Siam Babul Blue. Burma. VR.

4 (1a). Unf a spot in cell; unh prominent upper basal streak. ♂ as last above, but no modified scales. ♀ blue at bases, prominent spot end cell and whitish beyond it.

*jesous gamra, Led.* (21-26). The African Babul Blue. Ceylon, India, Burma. R. (= *crameri, M.*).

**H. 33. Lycænesthes. The Ciliate Blues. (Plate 27).**

Above uniform blue, no border; ♀ brown with blue bases and dark marginal spots H. Below with broad catenulated bands. Unh prominent orange crowned black marginal spot in 2.

1 (2). Unh spot base 7 large, of the ground colour; discal band more or less continuous. Unf discal band continuous or broken at v2. ♂ above dark purple blue. H. rounded.

α. Paler and markings below more regular.

*emolus emolus, God.* (28-35). The Ciliate Blue. S. India Sikkim—Burma. C. (= *bengalensis, M.*).

**H. 33. Lycænesthes.—The Ciliate Blues. (Plate 27).—(*contd*)**

β. Darker, smaller. Unf discal spot in 1 inclined inwards, pointing to spot end cell.

*emolus andamanicus, Fruh.* (25-28). Andamans. NR.

2 (1). Unh spot near base 7 small and black; discal band broken at v6. Unf discal band broken at v3. ♂ above much paler and bluer. H produced.

α. Below paler and edges of discal bands very irregular.

*lycænina lycænina, Fd.* (24-29). The Pointed Ciliate Blue. Ceylon. S. India. R.

β. Below darker; edges of discal bands much more regular.

**lycænina lycambes, Hew.* Sikkim-Burma. Andamans. NR.

**H. 34. Niphanda.—The Pointed Pierrot. (Plate 27).**

Above ♂ dark purple blue, markings from below show through faintly on F. ♀ disc whitish, prominent discal markings. Unf prominent dark streak from base along upper edge cell; spot mid cell continued to dorsum; lower part of discal band in 1 and 2 much shifted in. Unh spot base 7 and discal spots in 6 and 7 very prominently black, contrasting with rest.

α. Small, apex F and tornus H not much produced. ♂ above the blue shading to a broad fuscous margin, H with marginal spots. ♀ above no blue, white areas F and H often extensive. Unf streak from mid cell to vl of nearly even width, upper end slightly tapered.

**cymbia cymbia, DeN.* (26-30). The Pointed Pierrot. Sikkim—Dawnas R. (= *marcia, Fawcett: plinioides, M.*).

β. Larger; tornus H and apex F very produced. ♂ above much clearer blue and border reduced to a fine line. ♀ light blue, white beyond cell F and H. Unf streak from mid cell with lower part much enlarged. Unh spots on dorsum prominently black.

*cymbia tessellata, M.* (30-38). Java—S. Burma. R.

**H. 35. Heodes.—The Coppers (Plate 27).**

Mostly copper coloured above and spotted as *Lycaena* below.

1a (6a). H termen excavated between vs1 and 2.

1b (3a). Unf lower discal spots 1-3 not in line, spot in 2 shifted prominently out, ground colour orange with a brown border. Upf copper red, broad border, spotted as unf. Uph dark brown with submarginal red band. Unh grey brown with reddish margin. Tailless.

1 (2). Unh spots prominent, discal series resting outwardly on a white band and the red submarginal band is bordered on both sides by black spots. Unf brown margin even and submarginal black spots complete. ♂ upf unsullied copper; ♀ basal half dark brown; uph with faint purple suffusion.

**pavana, Koll.* (37-40). The White-bordered Copper. Kashmir—Kumaon. C.

2 (1). Unh spots minute, no white band or submarginal spots; unf apex broad grey brown. Uph often with small bluish discal spots. ♂ upf more or less suffused dark scales. Very variable.

α. Small, pale. Brown suffusion usually scanty.

*phlæas stygianus, But.* (26-30). The Common Copper. Baluchistan—Chitral and Ladak. C. (= *eleus, F.: timeus, Cr.: baralacha, M.*).

β. Larger. Upf brown suffusion intense, leaving only the base metallic copper.

*phlæas indicus, Evans.* (28-34). Outer Himalayas. Kashmir—Kumaon. C.

γ. Large, pale but bright. Brown suffusion scanty: upf veins black.

**phlæas flavens, Ford.* (30-34). Interior Himalayas to Sikkim, S.E. Thibet. C.

3a (1b). Unf lower discal spots in 1-3 in line.

3 (4a). Unh reddish brown with 2 narrow discal pale lines, pale line end cell and 2 or 3 basal black spots; markings very obscure. Above ♂ shining purple with dark border and prominent spot end cell, marginal orange lunules at dorsum F and along margin H. ♀ above dark brown, outer area F orange with blue-edged black spots. Unf orange with blue edged black spots. Tailless.

**tseng mandersi, El.* (31-35). The Chinese Copper. Shan States. VR.

4a (3). Unh white, prominently spotted.

4(5). Unf spot in 2 in line with spots in 1 and 4; white, more or less overlaid

**H. 35. Heodes.—The Coppers. (Plate 27.)—(*conta*).**

yellow. ♂ above brilliant golden copper, unspotted and border 1 mm., widening at apex and macular on H. ♀ yellow, fully spotted, base F and entirely on H suffused dark scales. Tailless.

**solskyi aditya, M.* (32-36). The Golden Copper. Chitral—Ladak. R.

5 (4). Unf spot in 2 in line with spot in 1 and spot end cell. Below both wings white with a somewhat diffused submarginal reddish band. Tailed. ♂ above purple brown basal two-thirds purple glossed, spots from below show faintly on F and end cell H ; ♀ dark brown, upf outwardly more or less orange and with orange marginal spots H.

*phœnicurus, Led.* (28-35). The Baluchi Copper. Baluchistan. R.

6a (1a). H termen evenly rounded.

6 (7). Unh white with prominent and regular spots and a red submarginal band spotted on either side. ♂ ♀ above purple brown, basally purple glossed, upf with a spot end and mid cell. Unf orange discal spots small, regular, becoming obsolete posteriorly ; submarginal spots small.

α. Tailed. Paler above and below.

*caspius susanus, Swin.* (29-35). The purple Copper. Baluchistan. R. = *transiens, Auct.*).

β. Tailless. Darker above and below.

**caspius evansii, DeN.* Chitral. R.

7 (6). Unh entirely verdigris green, spotless or with very tiny basal and discal spots. Unf orange with green border ; in ♂ the orange area partly or wholly suffused green ; discal spots in pairs in echelon, but upper pair shifted right in. Above ♂ bright copper, border 1½ mm., inwardly suffused purple ; upf fully spotted and uph prominent spot end cell and discal row. ♀ dark brown, upf more or less orange outwardly. Tailless.

*kasyapa, M.* (30-36) The Green Copper Chitral—Mussoorie. NR.

*v. zariaspa, M.* (27-32). ♂ above much duskier and entirely suffused purple ; upf spots smaller and regular, the lower discal spots not elongated as in typical form and never a spot base 2. ♀ darker, less orange F. Below much bluer. NR.

**H. 36. Heliophorus.—The Sapphires. (Plate 26).**

Below ochreous with a broad red border H. H usually tailed at v2 or at least toothed.

1 (2a). Unh prominent costal and dorsal black spots near base. ♂ above dark shining violet with a broad border F and red submarginal band H. ♀ dark brown, the red submarginal fascia continued on F. Below pale ochreous to ochreous brown, a prominent white line inside the red submarginal area. Tailed.

**sena, Koll.* (28-33). The Sorrel Sapphire. Chitral—Kumaon. C.

2a (1). Unh no prominent basal spots (may be minute ones in No. 2). ♀ above dark brown with a broad orange upper discal fascia on F and a red submarginal band on H.

2b (4a) Below no markings beyond sometimes a few dots between the base and the red marginal area, which is very dark and continued on to apex F. ♂ above dark shining purple. Tailed.

2 (3). Very variable. ♂ uph border broad, over 1½ mm. ; often with an orange area beyond the cell ; unh purple much restricted and red margin very prominent. ♂ F apex sharp and termen straight.

*epicles indicus, Fruh.* (28-34). The Purple Sapphire. Kumaon—Dawnas, Middle Andamans. C. (=*latilimbata, rufonotata, Fr.*).

3 (2). ♂ upf border narrow, 1 mm. and uph orange markings reduced. ♀ upf orange band wider. ♂ apex F more rounded.

*kohimensis, Tyt.* Nagas. NR.

4a (2b). Below with a dark discal line and a line end cells, usually obsolete on H, but at least line end cell on F is traceable ; red margin not continued to F and tornal spot F prominent.

4 (5a). H no tail, only a tooth at v2. ♂ above deep rich, non-metallic blue, border broad, but varies with season. Unf discal line straight and macular, if present. ♀ unf a large irrorated orange discal patch.

α. Dark border broad upf. Two seasonal forms.

*oda bakeri Riley.* (30-35). The Blue Sapphire. Chitral—Kangra. NR.

β. Dark border comparatively narrow.

**H. 36. Heliophorus—The Sapphires. (Plate 26).—(*contd.*)**

*oda oda, Hew.* Kangra—Kumaon. NR. (= *tamu, Auct.*).
5a (4). H with long tail ; ♀ unf no orange patch.
5 (6-8). ♂ above brilliant metallic green : inner edge dark border F straight.
α. ♂ metallic green with no bronzy tint.
*androcles coruscans, M.* (30-35). The Green Sapphire. Kashmir-Kumaon, NR. (= *langii, M.*).
β. ♂ with a more bronzy tinge.
*androcles androcles, Hew.* Assam. N. Burma. NR. (= *viridis, Evans.*).
6 (5, 7, 8). ♂ brilliant metallic blue ; inner edge dark border F curved.
**moorei moorei, Hew.* (30-35). The Azure Sapphire. Chumbi, Bhutan. NR. (*birmana, Fr. described in error= marica*—Tibet.).
7 (5, 6, 8). ♂ above powdered dark metallic green scales.
α. Upf green colouring as extensive as in No. 4.
*tamu tamu, Koll.* (34-40). The Powdery Green Sapphire. Kumaon—Sikkim. NR. (= *viridit unclata, DeN.*).
β. Upf green colour much restricted.
*tamu kala, Tyt.* Nagas. NR.
8 (5-7). ♂ above iridescent golden bronzy.
*brahma, M.* (32-38). The Golden Sapphire. Kumaon—N. Burma. NR. (= *hybrida, Tyt.*).

**H. 37. Neolycæna.—The Persian Hairstreak.**

Above dark brown, cilia chequered. Below brown. Unh with irregular white discal and postdiscal streaks ; 2 rows of black submarginal dots, white margined inside and yellowish between the rows. Very like an ordinary *Lycæna* in general appearance.
*sinensis, Alph.* (32-34). The Persian Hairstreak. Baluchistan. VR.

**H. 38. Callophrys.—The Tailless Hairstreaks.**

1 (2-3). Below dull green with a row of small obsolescent discal white spots on H. Above plain dark brown.
*rubi, L.* (28-32). The Green Hairstreak. Baluchistan—Chitral. R.
2 (1-3). Below bright ferruginous, base H darker ; a narrow irregular dark discal line. Above rather pale blue with a broad dark border and apex F.
*leechii, DeN.* (30). The Ferruginous Hairstreak. Assam. VR.
3 (1-2). Below dark brown with dark lines across base H, ends cells and 2 across disc, also submarginal diffused line H. Above plumbeous blue.
*chalybeia, Leech.* (28-32). The Plumbeous Hairstreak. N. Burma. VR

**H. 39. Strymon. The White-line Hairstreaks. (Plate 26).**

Above dark shining brown. Below pale to dark brown, a narrow discal white line across both wings, inwardly black edged ; a more or less obsolete series of black submarginal spots, inwardly white edged and a subterminal white line ; H tornal lobe and spots in 2 black prominently crowned orange.
1 (2). H single tail at v3. Unh discal line regular ; submarginal spots obsolete on H and on F only in 2 and 3.
**sassanides, Koll.* (28-35). The White-line Hairstreak. Baluchistan—Chitral—Mussoorie. NR.
2 (1). H tailed at vs 2 and 3. Unh white discal line distorted to a W near dorsum.
*mackwoodi, Evans.* (34). Mackwood's Hairstreak. Manipur, N. Shan States. VR. (= *saitua, Tyt.*).

**H. 40. Listeria.—Lister's Hairstreak. (Plate 26).**

♂ above bright blue, very broad black apex F ; ♀ duller. Unf smoky brown, outer ½ broadly paler and bearing an obscure wide fascia ; a pale spot end cell. Unh basal ½ black, rest reddish brown, very obscurely marked.
**dudgeoni, DeN.* (26-28). Lister's Hairstreak. Mussoorie—Sikkim. VR.

**H. 41. Euaspa.—The Water Hairstreak. (Plate 26).**

♂ ♀ above rather pale blue, broad black apex F and an upper white discal patch F and H. Below dark chocolate brown, broad whitish border and marginal white ringed spots orange circled at tornus H. Lobe small.

**miliona*, *Hew.* (30-34). The Water Hairstreak. Murree—Kumaon. NR.

**H. 42. Thecla.—The Hairstreaks. (Plate 26).**

Mostly metallic green above in ♂. ♀ blue purple or brown with 2 orange or white discal spots on F. Below usually with dark edged white lines and more or less prominent tornal orange and black spots H. All tailed except No. 17.

1a (5, 6a, 12a). ♀ upf basally purple with 2 orange discal spots, end cell and mid 3 ; uph plain dark brown.

1b (3a). ♂ above dark powdery green, or dull purple ; upf black border 3 mm , vs black. ♀ purple colour confined to base, orange spots small. Below brown to ferruginous with broad dark bands consisting of a bar end cell, discal band, marginal and submarginal bands ; discal bands more or less edged outwardly by a silver line.

1 (2). Unh discal band very broad, coalesced to bar end cell, outwardly silver edged, straight to v2, then zig-zagged to dorsum ; inner submarginal band lunulate ; prominent orange crowned tornal spots. Below rather pale brown, bands dark brown. Unf discal band straight and increasing to costa. Above dark powdery green. Wings produced. ♀ purple absent.

*icana*, *M.* (40-45). The Dull-green Hairstreak. Kulu—Kumaon. R.

2 (1). Unh discal band narrow and quite separate from the bar end cell ; inner submarginal band lunulate. Below markings ferruginous ; unf discal band of even width. Above purple. Wings rounded.

α. Below ochreous brown, discal band outwardly silver edged and on F angled at v3 ; on H straight to v2, thence zig zagged to dorsum ; tornal spots traceable, but very obscure.

**bieti dohertyi*, *DeN.* (40-45). The Indian-purple Hairstreak. Kulu—Garhwal. R.

β. As last, but upf base only violet and uph all dark brown.

*bieti mandara*, *Doh.* (40). Kumaon. VR.

γ. ♂ above as α, but darker purple. Below very dark brown, silver edging to discal band obsolete ; discal band on F evenly curved and on H only slightly zig-zagged at lower end ; all markings very deep ferruginous and tornal spots H absent.

*bieti irma*, *Evans.* (38). Bhutan. R.

3a (1b). ♂ not dull or purple green. Unh tornal orange spots prominent. Wings rounded.

3 (4). ♂ marked like ♀ ; upf peacock purple with broad dark brown apex and termen and 2 small yellow discal spots. ♀ duller, orange spots much larger, coalesed. Unf dark brown, powdery purplish white discal band, inwardly silver edged and a submarginal white line ; in ♀ orange discal spots show as above. Unh dark brown base, broad irregular discal band, and broad submarginal band powdery purplish white.

**pavo*, *DeN.* (35-38). The Peacock Hairstreak. Bhutan—Nagas. VR.

4a(3). ♂ above metallic green.

4(5). ♀ as ♂ of last. ♂ below silver white, no submarginal markings, dark bar end cells, narrow brown discal band often obsolete on F, and irregular dark brown central markings on H, often obsolete. ♀ unf pale brown, dark discal and submarginal markings, separated by a broad silver band ; unh as ♂ but markings broader and silver ground, especially towards base, tending to become pale brown.

α. ♂ upf black margin 2 mm. to 5 mm. at apex.

**ataxus ataxus*, *Db.* (40-46). The wonderful Hairstreak. Murree-Kumaon. R. (= *katura*, *Hew*).

β. ♀ upf borders much narrower.

*ataxus zulla*, *Tyt.* Nagas. VR.

5(4). Below uniform brown, areas between discal and submarginal lines not conspicuously paler : ♀ above as *ataxus*.

*letha watsoni*. (40). Watson's Hairstreak. Assam, Chin Hills, S. Shan States. VR.

6(1a, 7a, 12a). ♀ above metallic sky blue, very faint traces of orange discal spots upf and borders broad. ♂ above bronzy metallic green with a violet sheen,

**H. 42 Thecla.—The Hairstreaks. (Plate 26).—(*contd*).**

border 1½ mm to 5 mm. at apex ; uph a terminal blue line dorsum—v3. Below dark brown with silver white lines; unf line end cell, discal line and two submarginal lines ; unh line through mid cell to v8, discal line very zigzag at lower end, submarginal and diffused marginal lines, tornal orange spots prominent.

*suroia, Tyt.* (40-42). Manipur. The Cerulean Hairstreak. Manipur. R.

7*a* (1a, 6, 12a). ♂ upf dark brown, upf with large coalesced orange discal spots in mid 3 and end cell, spot in 3 often continued into 2. Below pale to dark brown ; unf silver or pale edged dark bar end cell, dark discal band, outwardly silver or pale edged, 2 whitish submarginal lines ; unh similarly marked and margin powdered whitish scales, tornal spots prominent and area between discal and submarginal lines often pale brown or white powdered.

7b (10a). Unh basal line mid 7 present, though often obscure.

7(8a). Unh basal line 7 crosses cell, but cell portion may be obsolete especially in ♀ ; upper end bar end cell nearer basal than discal line. ♀ unf orange spots show prominently and in ♂ there are some obscure orange scales in middle of cell bar. Below dark brown, area between discal and submarginal lines prominently silver powdered. ♂ above metallic green, border

*vittata, Tyt.* (41-44). Tytler's Hairstreak. Manipur—Nagas. R.

8a (7). Unh basal line does not enter cell ; upper end cell bar much closer to discal line. ♀ unf no traces of orange spots.

8 (9). Above ♂ metallic green ; border 1-2 mm., sharp defined.

*α* Unh basal area pale, same shade as area between discal and submarginal lines.

*duma duma, Hew.* (42-48). The Metallic Green Hairstreak. Sikkim—Nagas. NR.

*β*. Unh basal area dark, same shade as between marginal pale area and submarginal line.

* *duma dumoides Tyt.* (44-48). Manipur. NR.

*v. intermedia, Tyt.* (38-44). Smaller and ♂ border F narrower.

9 (8). Above ♂ powdered dark green scales, border 4 mm., meeting black apex at v4 (Manipur, at v6 in Sikkim). Below uniform very dark brown, silver discal line prominent, remaining markings obscure and pale postdiscal areas absent.

*zoa, DeN.* (42-46). The powdered Green Hairstreak. Sikkim—Manipur. R.

10a (7b). Unh basal silver line absent.

10 (11). Above ♂ powdered dark green scales, border 4 mm., meeting black apex at v6. Very like No. 8, but paler below and smaller.

*doni. Tyt.* (36). The Suroifui Hairstreak. Manipur. VR.

11 (10). Above metallic green with sharp defined border. Below silvery fawn colour, area between submarginal and discal lines conspicuously paler nearly white, silver lines absent. Uph ♂ terminal metallic blue scales, dorsum—v3

*kabrua, Tyt.* (36–40). The Kabru Hairstreak. Manipur, Nagas. R.

12a (1a,6,7a). ♀ above more or less rather pale blue with 2 large whitish spots end cell and mid 3. Below grey brown to silvery bluish marked as in last group.

12b (18). ♂ metallic green with well defined black border.

12c (17). H tailed.

12d (15-16). Unh discal band straight and continuous from v2 to costa.

12 (13-14). Below grey brown, not silvery. ♂ above border even and broad, 2 mm., F and H. ♂ only traces of blue on F and H all dark brown. Below markings very even ; H tornal orange spots prominent.

*birupa, M.* (38-40). The Fawn Hairstreak. Simla—Kumaon. NR.

13 (12-14). Below greyish white, not silvery. ♂ above border F as last. H narrower and irrorated bluish scales. ♀ blue colour extensive F and H. Unh markings pale and diffuse, no tornal orange spots H.

*jakamensis, Tyt.* (40-42). The Jakama Hairstreak. Manipur, Nagas. R.

14 (12-13). Below bluish silvery. ♂ F border narrower, even.

*α*. Larger. ♂ border H as broad as on F and no blue scales on it. ♀ H blue colour much restricted.

* *syla syla, Koll.* (42-45). The Silver Hairstreak. Safed Koh. Chitral—Kumaon. C. ( = *triloka, Hannyngton*).

**H. 42. Thecla.—The Hairstreaks. (Plate 26).**—(*contd.*)

β. Smaller. ♂ border H narrower than on F and irrorated blue scales. Below markings narrower, tornal orange spots H obscure. ♀ uph blue colour extensive, usually to termen.

*syla assamica, Tyt* (36-38). Sikkim—Manipur. R.

15 (12d, 16). Unh discal line very irregular, much bowed out opposite end cell. ♂ above margin very narrow. ♀ and below as No. 14 β.

*kirbariensis, Tyt.* (36-38). The Kirbari Hairstreak. Manipur, Nagas. R.

16 (12d, 15). Unh discal line broken into semi-detached streaks, bowed in opposite end cell. Unf discal line also of detached streaks. ♂ ♀ above as No. 15, but uph with a blue terminal line on either side of tail.

*paona, Tyt.* (46, 47). The Paona Hairstreak. Manipur. VR.

17 (12c). Tailless. ♂ ♀ above as No. 15, border in ♂ broader. Below as No. 16, markings smaller and often obscure; no tornal orange markings.

*khasia, DeN.* (36-38). The Tailless Metallic Green Hairstreak. Assam—Manipur and Nagas. R.

18 (12b). ♂ as ♀. Tailed. Above blue colour extensive; H margin narrow containing a narrow pale blue line running along entire termen. Below white, not silvery; F discal band black, also submarginal band, which ends in 2; very large spots in 1 and 2; other markings pale brown; H tornal orange spots prominent.

* *ziha, DeN.* (35-38). The White-spotted Hairstreak. Murree—Kumaon. R.

**H. 43. Chaetoprocta.—The Walnut Blue. (Plate 26).**

Above ♂ ♀ dark shining purple, border and apex broadly black, broader in ♀. Below white, marked as in H 42-14; bands on H and end cell F pale and obscure; discal band F black also marginal spots F, that in 1 being very large. ♀ with a prominent tuft of closely set yellow hairs at end of abdomen. Lobe fairly well developed and H angled at v3.

* *odata, Hew.* (32-36). The Walnut Blue. Chitral—Kumaon. C.

**H. 44. Ambiopsis.—The Chinese Hairstreak.**

Above ♂ ♀ metallic blue with broad dark brown borders and orange discal spot in 4-5 F. Unf pale brown, apex and margin chestnut, a silver bar end cell and a silver discal line. Unh chestnut, a central silver Y band from mid costa to tornus.

*avidiena, Hew.* (32). The Chinese Hairstreak. Naga Hills, VR.

**H. 45. Curetis.—The Sunbeams. (Plate 27).**

♂ golden red above: ♀ with red or white discal areas. Below silvery white with obscure bands.

1a (4a). Below not covered with minute black dots. Unf discal and submarginal bands parallel. Unh discal band far from end cell. ♂ upf black border not or only very slightly continued along the dorsum. H only slightly produced and termen rounded.

1b (3). ♀ above with broad white discal patches.

1 (2). ♂ above copper of a pale tint: upf dark border very narrow, often reduced to a thread at dorsum and angled at the apex more or less. Below postdiscal line on both wings fairly straight and regular.

*æsopus, F.* (40-48). The Malabar Sunbeam. Ceylon. S. India—Bengal. NR. (= *phædrus, F.*: *arcuata, M.*).

2 (1). ♂ above darker: upf dark border broader and more even. Below postdiscal line separately curved in each space and varies in distance from base; unh line on either side of v5 markedly nearer the margin.

*thetis, Dry.* (40-48). The Common Sunbeam. India, Burma. NR.

3 (1b). ♀ with orange or obscure whitish discal areas. ♂ above with broad, evenly curved, dark border. Unf postdiscal lunules in 5 and 7 well beyond the others and not in line with rest as in No. 2.

α. ♀ with orange areas. Always larger than β.

*saronis gloriosa, M.* (44-48). The Burmese Sunbeam. Cachar—Burma. NR.

β. As last, but smaller.

*saronis saronis, M.* (40-44). Andamans. NR.

γ. ♂ as last. ♀ with obscure whitish discal areas.

**H. 45. Curetis.—The Sunbeams. (Plate 27).—(*contd.*)**

*saronis nicobarica, Swin.* (40-44). Nicobars. NR.

4a (1a). Below covered with minute black dots. ♂ upf border continues along dorsum.

4 (5a). F termen convex and H termen rounded. ♂ uph base and tornus broadly darkened. ♀ with broad orange areas, which are darker and more restricted than usual : on H bar end cell not showing and the red area usually does not reach the costa. Below discal and submarginal bands nearly parallel.

*sperthis, Fd.* (30-40). The Rounded Sunbeam. Mergui. R. (= *santana, M.*).

5a (4). F termen straight or concave and H tornus produced. Unf discal and submarginal bands convergent to apex.

5 (6). ♀ with orange or white discal areas. Unh portion of discal band in 6 and 7 variable, but not in line with bar end cell.

α. ♂ above very variable and difficult to distinguish from No. 6 : darker and usually no tooth and cell upf : uph base darkened, leaving a red discal area, which narrowly reaches the costa, as a rule. ♀ with white discal areas.

*bulis bulis, Db. & Hew.* (35-45). The Bright Sunbeam. Mussoorie—N. Burma. R. (= *discalis, stigmata, M.*).

β. ♂ much brighter : uph all red with a prominent black streak from the base over the mv : ends veins black. ♀ with orange discal areas.

* *bulis malayica, Fd.* (40-45). Karens—S. Burma. NR.

6 (5). ♀ with white discal areas of variable extent. Unh the portion of the discal band in 6 and 7 in line with the bar end cell, seen best by transparency from above. ♂ above paler red than usual and usually a tooth end cell upf. F apex very produced and may be falcate : tornus produced and termen straight or concave. H tornus much produced and termen produced in middle, being sharply angled at v4.

*acuta dentata, M.* (40-50). The Angled Sunbeam. S India. Central Provinces. Mussoorie—Burma. C. (= *angulata, M.*).

**H. 46. Iraota.—The Silverstreak Blue. (Plate 27).**

Above bright shining blue with broad borders. Below dark ferruginous ; unf a silver streak and discal spots ; unh usually a broad irregular basal silver streak, obscure zigzag discal markings and usually ochreous towards termen

1 (2). ♂ tail only at v1 ; ♀ also tail at v2 ; margin more or less crenulate. Unh silver streak never to margin and sometimes completely absent. ♀ purple with broad borders.

α. ♂ above green rather than blue ; unh silver streak, when present, clouded ferruginous.

*timoleon nicèvillei, But.* (40-48). The Silverstreak Blue. Ceylon. R.

β. ♂ above blue. Unh silver streak, if present, clear.

* *timoleon timoleon, Stoll.* S. India—Mussoorie—Burma. NR. (=*mæcenas, F. : nila, Koll.*)

2 (1). ♂ tail at vs 1 and 2 ; ♀ with an extra tail at v3. ♂ above deeper blue ; ♀ entirely dark brown. Below silver markings more extensive and wider ; F discal spot in 4 elongate, nearly to termen ; H a basal streak along costa and usually the broad irregular streak reaches termen and throws down a bar across end cell ; discal zigzag silver markings prominent, margin broadly pale ochreous.

*rochana boswelliana, Dist.* (40-48). The Scarce Silverstreak Blue. Manipur—Burma. R.

**H. 47. Horsfieldia.—The Leaf Blue. (Plate 27).**

Above blue or purple with dark borders. Below dark ferruginous in ♂, rather pale brown in ♀, with a prominent black discal line across both wings, more or less irrorated with dark scales, presenting a leaflike appearance as in *Kallima*.

1 (2). ♂ above purple with border of even width.

α. Smaller and darker. ♀ in 2 forms, typically small blue to purple.

*anita naradoides, M.* (42-52). The Purple Leaf Blue. Ceylon. NR.

♀ v. *darana, M.* Above plain brown. R.

β. Larger. ♀ above smalt blue. ♂ above border narrower.

* *anita anita, Hew.* (50-55). S. India. Sikkim—Burma. NR. (= *arra-*

**H. 47. Horsefieldia.—The Leaf Blue. (Plate 27).—(*contd.*)**

γ. ♂ bluer above and darker below. ♀ blue area larger and extending to H.

*anita andamanica. Ril.* (50-55). Andamans. NR.

2 (1). ♂ above rich deep blue; ♀ purple blue, always more extensive, especially on H. ♂ above border narrows to dorsum.

*narada taooana, M.* (50-55). The Blue Leaf Blue. Dawnas—S. Burma. R. (= *andersoni*, M).

**H. 48. Thaduka.—The Many-tailed Oakblue. (Plate 27).**

α. ♂ ♀ above pale silvery blue, black border = ¼ the wing F and H. Below base F and all H very dark brown, outer half F pale brown, with a discal band of black spots: H spotting very obscure; a prominent white spot mid cell F and usually some metallic green spots at bases F and H and above the tails.

* *multicaudata kanara, Evans.* (35-45). The Many-tailed Oakblue. S. India. R.

β. Above darker. Unf cell spots and unh spot base 7 dark.

*multicaudata multicaudata, M.* S. Burma. R.

**H. 49. Mahathala.—The Falcate Oakblues. (Plate 27).**

1 (2). H margin smooth. ♂ above rich deep blue with narrow borders: ♀ purple with broad borders. Below rufous brown, markings obscure: F white lines across cell and a broad continuous dark discal band; H a pale fascia from mid dorsum to apex and a similar submarginal fascia, obscure spots at base.

* *ameria. Hew.* (38-42). The Falcate Oakblue. Bengal—Burma. R.

2 (1). H margin crenulate. ♂ ♀ above blue with broad borders and black veins; costa upf chequered black and white. Below pale to dark brown: H with obscure confused markings as in H. 48; F. with 6 white bars across the cell, a highly waved postdiscal line and a square large pale patch mid 1, with 2 smaller square spots in 2 and 3; H some tornal metallic green scales.

* *atkinsoni, Hew.* (35-40). The Crenulate Oakblue. Manipur—S. Burma. R.

**H. 50. Amblypodia.—The Oakblues. (Plate 28).**

Above all shades of blue and purple and even metallic green. Below normally with the same pattern. Unf 3 spots in the cell, including the spot at the end of the cell; often with a costal spot in 10 over the spot end cell and more rarely with one or more spots nearer the base in 11 and at the bases of 10 and 11; a more or less continuous discal band, which may be broken at v4 and may or may not be continued to v1; a spot at base 2 and a dark area at base 1; a submarginal dark line. Unh a more or less prominent spot or half spot at base 8; a basal row of 4 spots (7, cell, 1 and dorsum); a central row of 3 spots (7, cell and 2); a continuous band made up of spots from the costa to dorsum, the shape of which varies in different groups, more especially as to the shape and position of the two uppermost spots (in 7 and 6), whether the dislocation at v2 is partial or complete and whether the band runs continuously to the dorsum or not; more or less prominent tornal green or blue metallic scales and a single broad or 2 narrow submarginal lines. May be tailed at v2 and lobed at the tornus H.

1a (73a). Unf with 3 normal dark cell spots.

1b (17a). Unh with the discal spots in 7, 6 and 5 with their centres in line, more or less rounded; spots in 7 and 6 in echelon, inner edge of spot in 6 more or less in line with the outer edge of the spot in 7 (see also Nos. 27 and 28). Tailed or tailless.

*Anthelus* Group.

1c (11a). Tailed.

1d (4a). Unf cell spots abnormal, not confined to cell; discal band broken at v4. Unh tornal green scales diffused; lobed. H produced.

1 (2-3). Unf spot end cell extended to costa and 3 prominent whitish costal spots, including upper spot of discal band; unh discal band completely broken at v2 and continuous to dorsum. Below chocolate with on H a broad white band from base cell to apex and below this band the ground colour is much paler. Above ♂ ♀ pale blue, border F ½ mm. at tornus to 5 at apex, H no border.

**H. 50. Amblypodia—The Oakblues. (Plate 28).**—(*contd*).

**subfasciata, M.* (40-46). The White-banded Oakblue. Dawnas—S. Burma NR.

2 (1-3). Unf basal and central spot extended to v12 and 2 prominent costal spots; unh an additional costal spot at base 8, discal band partially broken at v2 and discontinuous to dorsum. Below ochreous brown, spots on F and about costa H very dark. ♂ above metallic blue changing to purple, border F ½ mm. at tornus to 3 at apex; ♀ paler metallic blue, borders broad; tornus H fuscous

α. Above paler. Below pale ochreous. Unh other than costal spots obscure.

**anthelus anthelus, Db. and Hew.* (50-60). The Multi-spotted Oakblue. Dawnas. NR.

β. Above and below much darker. Unh all markings prominent.

*anthelus anthea, Evans.* Tavoy—S. Burma. NR.

3 (1-2). Unf central cell spot only extended to v12 and a single costal spot in 10 over spot end cell; unh discal band completely broken at v2 and continuous to dorsum. Below pale ochreous brown, spots large, rounded and only slightly darker than the ground, apex and outer part of H may be whitish. ♂ above pale metallic blue changing to violet, no border; ♀ more violet, border broad and a spot at end cell F.

*anarte, Hew.* (62-65). The Magnificent Oakblue. Manipur—S. Burma. VR.

4a (1d). Unf cell spots normal and at most a single costal spot.

4 (5a). Below rosy purple. Unf discal band continuous or slightly broken at v2, no costal spot. Unh discal band partially broken at v2 and continuous to dorsum, tornal green scales diffused. ♂ above dark purple blue, border F, ½ mm.; uph costa broadly fuscous: ♀ with broad borders.

*suffusa, Tyt.* (40-50). Tytler's Rosy Oakblue. Manipur—Dawnas. R.

5a (4). Below brown or ochreous brown.

5b (10). ♂ upf no discal area of modified scales. Unf discal band completely broken at v4; unh discal band partially dislocated at v2 and more or less continuous to dorsum.

5c (9). Unf no costal spot in 10 over spot end cell.

5d (8). Unf discal spots separated by white irides. Below pale brown with large prominent spots. Unh tornal green scales diffused; lobed.

5a (7). Above ♂ pale violet blue, border a thread, a black spot end cell surrounded by a white area. ♀ paler, becoming whitish outwardly, spot end cell and a spot beyond conjoined to the costal border Unf discal spots in 2 and 3 elongated towards the spot end cell.

5 (6). Unf discal spots well separated.

α. Pale and large. Below markings small in DSF, being very black on F and about costa H.

**camdeo camdeo, M.* (52-56). The Lilac Oakblue. Sikkim—N. Burma. R

β. Smaller and darker. ♀ more uniform violet blue.

**camdeo varro, Fruh.* (42-50). Karens—S. Burma. R.

6 (5). Unf discal spots large with irides conjoined.

*dispar, Riley.* (44-52). The Siam Oakblue. Assam—Dawnas. R.

7 (5a). ♂ above pale silvery metallic blue, border O to 1 mm. at apex ♀ bluish white, border broad and a spot end cell. Unf spots in 2 and 3 rounded; unh whitish below costa inside the discal band.

**karennia Evans* (48). The Karen Oakblue. Karens. VR.

8 (5d). Unf discal spots not separated by white irides, upper spot of discal band shifted in. Below rather dark brown, all white edgings prominent. ♂ pale silvery violet blue, no border, a more or less prominent discal white spot upf. ♀ darker and border broad: spot end cell, not joined to costal border.

*aedias opalina, M.* (48). The Opal Oakblue. Assam—Tavoy. VR.

9 (5d). Unf costal spot in 10 over cell spot in continuation of upper spot of discal band, no spot in 1. Below hair brown, irides pale brown, not prominent; ♂ above metallic violet blue, no border; ♀ violet blue, borders broad, no spot end cell. Unh tornal green scales sharp defined.

*agnis, Fd.* (56-58). The large Metallic Oakblue. Dawnas—S. Burma. R (= *yendava, GrS*).

10 (5b). ♂ upf with a discal area of modified scales. Unf discal band variable, may be broken at v4, only sinuous, or spot in 4 may be shifted out; usually

**H. 50. Amblypodia—The Oakblues. (Plate 28).—(*contd.*)**

costal spot in 10. Below hair brown, markings dull ; unh discal band completely dislocated at v2 and continuous to dorsum ; tornal green-scale sharply defined, lobed. ♂ above metallic violet blue, becoming violet outwardly ; ♀ with broad borders, no spot end cell, but with ill-defined spots beyond conjoined to the costal border.

*a*. Paler and more silvery, border F in a thread.

*atosia aricia. Stg.* (42-46). The Tailed Disc Oakblue. Pegu Yoma—Karens. R.

β. Darker, border F in ♂ ½ mm.

* *atosia atosia, Hew.* Dawnas—S. Burma. C.

11a (1c). Tailless. Below hair brown, markings dull ; unf no spot in 1 and costal spot obscure or absent : unh lobed and tornal green or blue scales sharply defined. ♂ border broad, no spot end cell, but may be spots beyond joined to the costal border. Wings rounded and costa F highly arched.

11b (13a). Unh discal band completely dislocated at v2 and continuous to dorsum. Below more or less obscurely purple washed.

11 (12). Unf costal spot in 10, discal band broken at v4 and usually spot in 4 shifted out. ♂ ♀ above as in No. 10, but border F in ♂ up to 1 mm. (Paler and bluer than typical *epimuta* from Java).

*epimuta elsiei, Evans.* (37-43). The Tailless Disc Oakblue. Tavoy—S. Burma. NR.

12 (11). Unf costal spot in 10 obscure or absent, discal band bent at v4 and spot in 2 shifted out ; darker below. ♂ above shining metallic blue, completely overlaid violet on F, border F 1½ mm.

* *metamuta, Hew.* (36-40). The Bicolor Oakblue. Karens—S. Burma. R.

13a (11b). Unh discal band partially dislocated at v2, more or less continuous to dorsum. Unf no costal spot in 10 ; discal band bent at v4.

13 (14-15). ♂ above pale metallic blue shading to violet, border F ½ mm. Small.

*pagaiensis, Ollen.* (38-40). The Pale Arched Oakblue. Dawnas—S. Burma. R. ( = *hypomuta, Auct.*)

14 (13-15). ♂ above darker and much larger.

* *moolaiana, M.* (42-50). The Large Arched Oakblue. Karens—S. Burma. R. ( = *pastorella, Doh.*).

15a (13-14). ♂ above dark uniform violet blue ; ♀ uph border broad. Below darker and markings more prominent.

15 (16). Border F 1 mm.

*agesilaus, Stg.* (43). The Dark Arched Oakblue. Mergui. VR.

16 (15). Border F a thread.

*amphimuta, Fd.* (43). The Malay Arched Oakblue. Mergui. VR.

17a (1b). Unh discal spots in 7, 6 and 5 with centres not in line, 7 and 6 more or less quadrate, conjoined. (See Nos. 28 and 29).

17b (66a). Unf no spot base 11 between basal and central cell spots.

17c (37a). Unh discal band completely dislocated at v2 and usually continuous to dorsum. Always tailed and F termen never concave just below the apex ; lobed.

17d (22a). Unf discal band completely broken at v4, spot in 4 being shifted out of line with the rest ; usually a well defined costal spot in 10 and often spot in 11 and at base of 7 and 10. Unh tornal green scales prominent, though sometimes diffuse.

*Atrax* Group.

17 (18a). Below dark chocolate, all markings broken up and consisting of small white lines and dashes. Unh discal spot in 6 large, overlapping spot in 5 and end cell, outwardly concave. ♂ above pale metallic silvery blue shading to violet at apex F, border ½ mm. ; ♀ pale blue with broad borders F.

* *albopunctata, Hew.* (34-38). The White Spotted Oakblue. Karens—S. Burma. C.

18a (17). Below grey brown to ochreous or purple brown with a purple to pinkish wash. Unh discal spots in 7 and 6 conjoined and placed between spot end cell and spot in 5.

18 (19-21). ♂ above dark shining purple blue, border F 1½ mm. to 3 at apex ; ♀ shining blue, border F 2mm. to 5 at apex, costal border 1 mm. leaving blue over cell, a black area beyond cell conjoined to black apex. Below very distinct, dark purple brown with prominent white edged broad markings, more

**H. 50. Ambiypodia.—The Oakblues. (Plate 28).—(*contd.*)**

irregular than usual; F costal spots prominent; 2 zigzag submarginal lines. Wings rounded.

* *alitæus mirabella, Doh.* (36-38). The Purple Brokenband Oakblue Tavoy—S. Burma. R.

19 (18, 20, 21). ♂ above dark shining purple blue, border 1½ mm. to 3 at apex; ♀ shining blue, border 3 mm., all costa and apex black to v4, a small spot mid 5. Below grey brown to purple brown, markings prominent but much more regular and narrower; unh discal band usually discontinuous at dorsum. Apex F produced and termen straight.

*atrax, Hew* (32-38). The Dark Brokenband Oakblue. Shan States—S. Burma. N.R. (= *aida, DeN.* : *mindaneneis, BB.*).

20 (18, 19, 21). ♂ above shining violet blue, or silvery blue, overlaid violet: border F 1 mm.-1½ at apex. ♀ pale blue, border 1½ mm.-5 at apex, ½ mm. on costa, leaving blue above the cell, the black apex angled at v4. Below rather pale ochreous or grey brown with slight pinkish wash. Very variable above and below.

* *ariana, Evans.* (35-42). The Pale Brokenband Oakblue. Dawnas—S. Burma. R.

21 (18-20). ♂ above purple, border ¾ mm.; ♀ as last. Below ochreous brown to slightly purple brown. Wings much more rounded than in the rest of the group and unh tornal green scales much more sharply defined.

*rafflesii, DeN.* (37-40). Raffles' Oakblue. Mergui—S. Burma. R. (= *dama, Swin.*).

22a (17d). Unf discal band not much dislocated at v4, spot in 4 never pushed out and never more than a single costal spot (in 10 over the end cell spot).

22b (26a). Of large size, over 45 mm. Unh discal band in 2-5 straight, confluent and directed to the tornal lobe; tornal green scales prominent and usually diffuse; discal spot in 6 with its outer edge oblique and well inside the inner edge of the spot in 5.

*silhetensis* Group.

22c (25). Below ochreous brown. Unf discal band dislocated at v4, lower part shifted in; always a costal spot in 10. Unh discal band slightly dislocated at v4.

22 (23). Unf costal spot in 10 never so wide as the spot end cell; upper part of discal band straight or uppermost spot shifted in. Termen F straight.

α. ♂ above violet blue, border F 2 mm. Below greyish ochreous; bands and spots large and prominent; unh tornal green scales faint or absent.

* *silhetensis silhetensis, Hew.* (50-56). The Sylhet Oakblue. Sikkim—N. Burma. R. (=*niècvillei, BB.*).

β. ♂ above shining purple blue, border F ½ mm. Below clear ochreous brown, spots usually small and sharply defined.

*silhetensis arama, DeN.* (50-56). Karens—S. Burma. R.

23 (22). Unf costal spot in 10 very large, as wide as the spot end cell; upper part of discal band arched. ♂ above shining purple blue, border F ¾ mm ♀ border broad, and may be a spot end cell and a black patch beyond. Unh tornal green scales prominent.

* *adorea, DeN.* (46-50). The Singapore Oakblue. Dawnas—S. Burma. R. (= *antura, zambra, Swin.*).

24 (22d). Unf discal band not dislocated at all at v4, may be slightly sinuous there; costal spot in 10 present or absent. Below variable, may be slightly purple washed. ♂ above shining purple blue, border 1½ mm.-5 at apex; ♀ paler, bluer, border 2½-7 mm.

* *adatha regia, Evans.* (48-50). The Large Mergui Oakblue. Mergui. R.

25 (22c). Below rosy purple to purple brown; unf costal spot in 10 present or absent. ♂ above shining purple blue, border F 1 mm. ♀ paler, border 3 mm., a dark patch beyond end cell.

*apha, DeN.* (46-50). The Vinous Oakblue. Dawnas—S. Burma. VR.

26a (22b). Not larger than 45 mm. Unh discal band in 2-5 more irregular and discal spot in 6 with its outer edge more or less joining inner edge of spot in 5.

*Phaenops* Group.

26b (30a, 32a). Below dull ochreous hair brown. Rather large and wings produced. Unf discal band sinuous, no spot in 10.

6 (27a). Below rather dark brown, markings very wide and prominently

**H. 50. Amblypodia.—The Oakblues. (Plate 28).**—(*contd.*)

outlined white. Unh central row spots enlarged ; discal spots in 6 very large, overlaps spot in 5 and usually not up to the spot end cell ; tornal green scales diffused. ♂ above shining violet blue, border 1 mm. to 2 at apex, veins black, especially on H.

*arata, Tyt.* (44). Tytler's Dull Oakblue. Manipur. VR. (*krishna, BB.*).

27a (26). Below markings dull and narrrow.

27 (28a). Unh discal spot in 6 midway between the spot end cell and the spot in 5 or nearer the former ; tornal green scales sharply defined, prominent. ♂ above very deep purple blue, border ½ mm ; ♀ paler and borders very broad.

*agrata, DeN.* (44). DeNicéville's Dull Oakblue. Manipur—Burma. R.

28a (27). Unh discal spot in 6 much nearer the discal spot in 5 ; spots in 7, 6 and 5 in echelon with their centres more or less in line. Below markings very obscure.

28 (29). Unh no tornal green scales. ♂ above bright violet blue, border 1½ mm. ; ♀ as next.

*ænea, Hew.* (46). Hewitson's Dull Oakblue. Sikkim—Assam. R.

29 (28). Unh with more or less prominent metallic green scales at tornus. ♂ above dark purple blue, border ½ mm. ; ♀ purple blue costal and terminal border F 4 mm. and on H blue only about cell.

*khamti, Doh.* (46). Doherty's Dull Oakblue. Sikkim—N. Burma. NR.

30a (26b, 32a). Below rather dark ochreous hair brown with prominent markings and tornal green scales H ; rarely a very faint purple wash. Unf usually a spot in 10, discal band variable, may be straight, sinuous or slightly broken at v4 ; unh discal spot in 6 overlapping spot end cell or intermediate between it and the spot in 5. ♀ purple with broad borders.

30 (31) ♂ above bright shining deep blue, border F 1 mm. ♀ purple colour extending into the black apex, thereby forming a black patch end cell.

**aroa, Hew.* (34-40). The Bright Oakblue. Karens—S. Burma. NR.

31 (30). ♂ above dark purple blue, border F 1 mm. ♀ purple colour not extending into the black apex. Wings much more rounded.

*pryeri, But.* (38-42). The Roundwinged Bright Oakblue. Dawnas—S. Burma R.

32a (26b, 30a). Below with a more of less well developed rosy pinkish to purple gloss. Unf a more or less prominent costal spot in 10.

32b (34a). Unh discal spot in 6 more or less overlapping the spot end cell and the centres of spots in 7 and 6 in line with spot end cell.

32 (33). Unh discal spot in 5 well separated from the spot end cell. Below variable, the rosy pink gloss variable in shade and intensity.

α. Unf discal band usually broad, curved, sinuous, upper portion oblique : Unh tornal green scales prominent. ♂ above bright deep blue, border F 1½-2 mm. ♀ shining blue with broad borders. Very variable.

* *alea alea, Hew.* (34-40). The Rosy Oakblue. Karens—S. Burma. NR. (=*selta, Hew.*).

β. Unf discal band straight and narrow. Unh tornal green scales faint. ♂ above bright deep blue, border 1½ mm. ♀ shining blue.

*alea constanceæ, DeN.* (40). Andamans. VR.

33 (32). Unh discal spot in 5 conjoined to spot end cell or only separated by a double white bar ; discal band very irregular Unf discal band continuous, straight or slightly curved. Below purple brown with a purple glaze : unh tornal green scales rather faint. ♂ above dark shining violet blue ; ♀ paler purple blue, border broad and with more or less of a spot end cell.

α. Below uniform. Unh inner submarginal line prominently zigzag. ♂ border F 1mm.

*agaba aurelia, Evans.* (36-44). The Purple-glazed Oakblue. Manipur—N. Burma. R.

β Below patchy, apex and costa F and H except termen, as well as all the markings with a whitish glaze. Unh inner submarginal line obscured. ♂ border F ¾ mm.

* *agaba agaba, Hew.* Karens—S. Burma. NR.

34a (32b). Unh discal spot in 6 with its inner edge clear of the outer edge of the spot end cell. Unf discal band unbroken and on H discal band in 2-5 very compact. Unh tornal green scales usually faint and diffused.

34 (35-36). Below rather pale purple brown with a purple wash. Unf no spot in 10. Unh basal and central spot unusually small and bar end cell very

**H. 50. Amblypodia.—The Oakblues. (Plate 28).—(*contd*).**

narrow. ♂ above dark shining violet blue, border 1 mm.; ♀ paler purple, a spot end cell F and on H the purple colour confined to the cell.

*canaraica*, M. (44-45). The Kanara Oakblue. S. India. R.

35 (34,36). Below pale grey brown, more or less washed pinkish. Unf with a costal spot in 10, discal band very straight. Unh discal band almost continuous from 2-7. ♂ above dusky purple, border F 2 mm. to 4 at apex, H blue to just beyond end cell. ♀ border 3 mm. to 6 at apex and on H blue colour absent or with traces at base.

* *hewitsoni, BB.* (34-40). The Indian Oakblue. S. India—Dun—Dawnas. C. (= *atrax, Auct*).

36 (34,35). Below pale silky ochreous brown. Unf with costal spot in 10 discal band very straight and a prominent oblique spot in 1. Unh discal band almost continuous from 2-7. ♂ above dusky purple, ♀ blue ; border F 3 mm. to 6 at apex, a spot end cell and a whitish streak beyond ; on H blue to just beyond cell. Wings produced.

* *alemon. DeN.* (35-44). The Silky Oakblue. Manipur—Dawnas. C.

37a (17c). Unh discal band never dislocated at v2. (except No. 56).

37b (51a-54a). Tailed and F termen never concave just below the apex. *Centaurus* Group.

37c (45a). Unh discal spot in 6 overlapping spot end cell and the spot in 5, its outer edge concave.

37d (40a). Unf discal band continuous, not broken at v4 ; spot in 10 over end cell obscure or absent.

37 (38a). Unf an oblique discal spot in 1 ; unh tornal green scales faint or absent, no lobe or tornal black spots. Below dark ochreous brown, markings obscure ; unf markings in cell defined by vertical silver lines, discal band sinuous ; unh markings faint, discal spot in 5 close to spot end cell. ♂ above dark violet blue ; ♀ paler with broad borders. F apex produced and termen straight.

α. ♂ border F 1mm. ♂ ♀ paler basally.

*centaurus pirama, M.* (53-62). The Centaur Oakblue. Ceylon, S. India. NR.

β. ♂ border ¾ mm. ♂ ♀ uniform above

*centaurus pirithous, M.* Kumaon—Assam. NR.

γ. ♂ border ½ mm. ♂ ♀ uniform above.

**centaurus centaurus, F.* Burma NR. (= *helus, God : nakula, M.*).

δ. ♂ border ½ mm. Bases conspicuously paler, especially in ♀.

*centaurus coruscans, WM. & DeN.* Andamans. NR.

38a (37). Unf no discal spot in 1 or only a faint one in continuation of the discal band. Wings rounded.

38 (39). Below purple brown. Unh discal spot in 5 well separated from the spot end cell, tornal green scales more or less prominent and with a small lobe. Below purple brown with a conspicuous glaze. Above ♂ dark shining blue, border F 1½mm. increasing to 3 at tornus and apex and on H ; ♀ paler, border 4mm. and a black spot end cell.

*paralea, Evans.* (40-45). The Glazed Oakblue. Manipur—Shan States. R.

39 (38). Below ochreous brown with prominent markings ; unf with a costal spot in 10 and discal band sinuous ; unh sharply defined tornal green scales and lobe discal spot in 5 well separated from the spot end cell. Above ♂ shining purple blue, border F 1mm.

*cooperi. Evans.* (42-44). Cooper's Oakblue. Mergui. VR.

40a (37d). Unf discal band conspicuously broken at v4, lower spot shifted in and upper part oblique. Unh lobe well developed and always with more or less diffuse tornal green scales.

40 (41a). Unf dark area under cell produced along 1 to the discal band ; no costal spot in 10. Unh discal band very sinuous, spot in 5 at right angles to the spot in 4. Below grey brown to dark ochreous brown, markings prominent. Above ♂ dark shining blue ; ♀ brighter and paler with broad borders and a spot end cell.

α. ♂ above border F 1 mm.

*amantes amantes, Hew.* (45-57). The Large Oakblue. Ceylon, S. India—Dun—Sikkim. NR. (= *apella, Swin.*).

β. ♂ border upf 4 mm.

* *amantes amatrix, DeN.* Manipur—Dawnas. NR.

**H. 50. Amblypodia.—The Oakblues. (Plate 28).—(*contd.*)**

41a (40). Unf dark area under cell quite separate from the discal band ; usually prominent costal spot in 10. Unh discal spots square, moderately regular, in a stepped line.

41b (43a). ♂ above purple ; ♀ uph no blue and on F the broad dark border continued a little along the dorsum.

41 (42). Unh the central cell spot joined to the central costal spot. Below rather pale brown, apex F whitish ; H centre of disc and margin shining yellow. ♂ above dark purple, border F 2 mm. and a spot end cell ; ♀ rather pale purple.

* *singla, DeN.* (44-48). The Yellowdisc Oakblue. Sikkim—Karens. NR.

42 (41). Unh central cell spot never joined to central costal spot. Below ochreous brown to brown with a silky gloss ; F apex whitish ; H prominently, but sparsely sprinkled white scales, margin and markings more or less shining yellow. ♂ above very dark purple, very nearly black, border F 1 mm., 2 on H ; ♀ as last.

**bazalus, Hew.* (44-48). The Powdered Oakblue. Sikkim—Karens. NR.

43a (41b). ♂ above green. ♀ with more or less blue colouring on H. Unh bar end cell well separated from the spot in 5.

43 (44) ♂ above bright metallic brassy green, border F under 3 mm. Unh bar end cell narrow. ♀ purple blue with broad borders.

α. Wings rounded. ♂ upf border from 2 mm. at apex to 4 at tornus ; H green to just beyond the cell. Below uniform rather pale brown with a silky gloss ; H tornal green scales diffused. ♀ borders very broad and continued along dorsum

**eumolphus eumolphus Cr.* (44-50). The Green Oakblue. Sikkim—Karens. NR. (= *bupola, Hew.*: *tagore, Fr.*).

β. Apex F produced. ♂ upf border 1 mm. at apex to 3 at tornus, green area more extensive on H. Below as last, but apical area F and H broadly pale, whitish. ♀ border narrower, not continued along dorsum F.

*eumolphus hellenore, Doh.* Assam—Tavoy. NR. (= *viridissima, Swin.*).

γ. Wings rounded. ♂ above as last. Below uniform ochreous brown, no silky gloss ; H tornal green scales sharply defined, brilliant.

*eumolphus maxwelli, Dist.* Mergui. VR. (=*farquhari, Dist.*).

44 (43). ♂ above metallic peacock green, border F 6 mm. at tornus to 9 at apex. ♀ bright shining blue, border narrower than in ♂ 4 mm. and a black spot end cell. Below very dark ochreous brown, ♀ ferruginous brown, markings wider than usual, tornal green scales sharply defined, brilliant.

*horsfieldii eurysthenes, Frnh.* (40-46). The Peacock Oakblue. Dawnas—S. Burma. R. (= *basiviridis, DeN.*).

45a (37c). Unh discal spot in 5 outwardly rounded, not overlapping both spot end cell and the spot in 5, usually central, just filling the gap. Unf no spot in 10. Lobed.

45b (47a). Unh more or less overlaid white scales.

45 (46). Below entirely overlaid white scales except for the markings on F and about costa H. which are dark chocolate ; unf discal band slightly broken at v4 ; unh tornal green scales sharply defined. ♂ above dark shining purple border ½ mm. ♀ entirely dark brown.

*ormistoni, Riley.* (46). Ormiston's Oakblue. Ceylon. VR.

46 (45). Below apex F and H inside the wavy submarginal line and below v8 overlaid white scales, remainder dark chocolate. Unf discal band completely broken at v4 and the discal spot in 3 joining spot end cell ; markings prominently outlined white. Unh discal spot in 7 larger than the spot in 6, both prominently chocolate as also are the central and basal spot in 7, which are close together and conjoined to the chocolate area in 8 ; tornal green scales obscure. ♂ above purple, border F 2 mm. to 3 at apex and tornus. ♀ purple, paler, border 4 mm., running along dorsum and very broad at apex ; H only cell purple.

**bazaloides, Hew.* (44-47) The Tamil Oakblue. S. India, Assam—N. Burma. R.

47a (45b). Unh not overlaid white scales.

47b (50). Below ochreous hair brown ; unh tornal green scales prominent, discal band continuous to dorsum.

47c (49). Unf discal band slightly broken at v4.

47 (48). Unf base 1 under cell entirely filled dark brown up to origin of v2. Below markings very large. ♂ apex F pointed ; above very

**H. 50 Amblypodia—The Oakblues. (Plate 28).**—(*contd.*)

blue, border F ½ mm. and veins brownish. ♀ bright purple blue, border F 1-5 mm. at apex, black spot end cell.

*corinda acestes, DeN.* (50-55). The Ultramarine Oakblue. Mergui. VR.

48 (47). Unf no prominent dark basal area under cell. Below dark ochreous brown. ♂ above shining purple blue, border F 1½ mm., veins outwardly narrowly black.

*vihara, Fd.* (52). Felder's oakblue. Mergui. VR.

49 (47c). Unf discal band unbroken but bent at an angle of 140 degrees at v4. Below rather pale ochreous brown. ♂ ♀ alike rather pale blue, border H and at tornus F 2 mm. to 6 at apex.

*woodii, Ollenbach.* (40-50). Wood's Oakblue. Tavoy—S. Burma. R.

50 (47b). Below pale grey brown turning whitish at apex F and H. Unf spot base 3 joining spot end cell and the spot base 2 ; discal band broad, continuous, directed to tornus, spot in 3 slightly elongated inwards ; dark broad submarginal spots in 2 and 3 ; all markings black, except upper part of discal band, which is whitish. Unh all markings pale, black edged, more markedly so near costa, discal spot in 3 shifted in, joining spot end cell ; no tornal green scales. Above pale silvery blue, border F 4 mm. ; ♀ with black spot end cell.

*alesia, Fd.* (42-44). The Pallid Oakblue. Dawnas—S. Burma, Andamans. R. (= *wimberleyi, DeN*).

51a (37b-55a). F termen pointed and sharply concave below the point. Unh discal band discontinuous to dorsum, tornal green scales absent or faint. Tailed or tailless ; small lobe.

*Rama* Group.

51b (54). Tailed.

51c (53). Below markings regular. Unf discal band continuous, slightly broken at v4, at most a single costal spot in 10. Unh discal band not broken at v2.

51 (52). Below pale silkly ochreous brown, markings prominent on F, faint on H ; unh discal spot in 6 between spots end cell and in 5, not overlapping either. Above ♂ ♀ alike, pale blue, border F 4 mm. to 6 at apex, slightly continued along dorsum, a spot end cell and whitish beyond ; H border 4 mm. vs. blackish. Termen F crenulate.

**dodonæa, M.* (38-44). The Pale Himalayan Oakblue. Chitral—Kumaon. C.

52 (51). Below purple brown with a silky gloss. Unh discal spot in 6 large, overlapping spot end cell and spot in 5 and outwardly concave. Above ♂ dark violet blue ; ♀ purple with broad borders and a spot end cell F.

α. ♂ above border 1½-2 mm. and extending slightly along dorsum ; on H 3 mm. ♀ border 4-7 mm. and on H blue to just beyond cell. Below markings dull and faint.

*rama rama, Koll.* (38-40). The Dark Himalayan Oakblue. Kashmir—Sikkim. C. (= *querceti, M. : violacea, Rob.*).

β. ♂ border F 1 mm. and on H just under 1 mm ; ♀ purple more extensive Below markings darker and better defined.

**rama ramosa, Evans.* (34-40). Manipur—Dawnas. NR.

53 (51c). Below ochreous with dark irregular markings. Unf 2 costal spots, discal band very irregular and broken. Unh markings rather obscure, discal band completely broken at v2. Wings very produced especially at tornus H. ♂ ♀ above shining purple, border F 4 mm. to 7 at apex and a spot end cell ; H only purple at base.

*comica, DeN.* (42). The Comic Oakblue. Manipur—S. Shan States. VR.

54 (51b). Tailless. Below ochreous brown, markings inconspicuous and as in No. 51 ; unf cell spots may be obsolete. Wings rounded ♂ above dark violet blue, border F 2 mm. ; H blue to just beyond cell. ♀ purple with broad borders, a spot end cell F and on H cell only purple.

**paramuta, DeN.* (30-35). The Hooked Oakblue. Sikkim—Karens. NR. (= *newarra, M.*).

55a (37b, 51a). Tailless and F not concave below apex. Unh discal band discontinuous to dorsum ; unf no costal spot in 10.

*Agelastus* Group.

55b (60a). Below rough looking, ochreous brown to grey brown. Unf discal band straight, not sharply angled at v4, usually a spot base 3.

55 (56a). Unh central cell spot large, its iris touching the iris of the spot end cell. Below ochreous brown, all markings large and prominent, ringed pale

**H. 50. Amblypodia—The Oakblues. (Plate 28.)—(*contd*).**

yellow and with pale yellow patches at apex F and on H ; unh inner submarginal line zigzag, small black lobe and faint tornal green scales. Above ♂ purple with broad borders F and H : ♀ rather pale blue, border F 3 mm. to 5 at apex.

**alaconia oberthuri, Stg.* (38–40). The Patchy Oakblue. Karens—S. Burma. R.

56a (55). Unh central cell spot small, well separated from spot end cell. Unf often a broad dark area under cell ; discal band variable, often very broad.

56 (57a). Unh with tornal green scales. Below ochreous brown. Below markings may be wide and confluent, pale edgings dull. ♂ above shining purple, border F 2 mm. to 5 at apex ; ♀ brilliant shining blue, border as in ♂.

**agelastus, Hew.* (39–42). The Green-edged Tailless Oakblue. Shan States—S. Burma. NR. (= *perissa, Doh.*).

57a (56). Unh no tornal green scales.

57 (58–59). ♂ above violet blue, ♀ pale blue, rather dusky, border F 3mm. to 6 at apex. Below uniform ochreous brown, markings well defined : may be a purplish wash.

*asopia, Hew.* (42–46). The Plain Tailless Oakblue. Manipur—S. Burma. NR. (= *tounguva, GrS.*).

58 (57–59). ♂ shining purple, ♀ pale blue, border F and H 4 mm., even. Below paler, greyish ochreous brown, darker at base H, markings prominent. Wings very rounded and smaller.

*zeta, M.* (30–36). The Andamans Tailless Oakblue. Andamans. R. ( = *roona, M.*).

59 (57–58). ♂ above shining purple, ♀ pale purple, rather dusky ; ♂ border 2 mm., ♀ 4 mm.; ♀ H blue colour confined to cell. Below overlaid pinkish grey on costa and apex F and on all H, markings prominent.

*æeta, DeN.* (38). The Dawna Tailless Oakblue. Dawnas. R.

60a (55b). Below smooth looking ; unf discal band bent at v4, no spot base 3.

60b (64a). Below uniform.

60 (61a). Unf spot mid cell very large, reaches mv. Below purple brown all markings very large and basal spots H crowded together ; no tornal green scales. ♂ above light dull purple blue, border F 2 mm. to 6 at apex

*belphœbe, Doh.* (40). The Large-spotted Oakblue. Tavoy (Doh). VR.

61a (60). Unf spot mid cell does not reach mv ; unf discal band prominently bent at v4.

61 (62a). Below dark ochreous hair brown, with narrow, dull, regular markings, tornal green scales sharply defined, brilliant. ♂ above dark shining purple blue, border F ¼ mm., ♀ blue, border 4–6 mm.

**antimuta, Fd.* (30–36). The Small Tailless Oakblue. Karens—S. Burma. NR. (= *davisonii, DeN.*).

62a (61). Below glazed purple brown, markings prominent, but edging dull ; unh no tornal green scales and discal spot in 6 more or less excavate outwardly. Tornus H angled and slightly lobed.

62 (63). ♂ above rich shining dark purple, no border. ♀ rather pale blue, border F 3 mm. to 6 at apex, narrow on costa and no spot end cell or beyond.

**arvina, Hew.* (38–42). The Purplebrown Tailless Oakblue. Dawnas—S. Burma. R. (= *aboe, DeN.*).

63 (62). ♂ above rather pale shining blue, border F 1 mm. to 4 at apex and a black patch beyond cell, joined to the costal border ; ♀ border 3 mm. to 7 at apex and the black area beyond cell coalesced to apex.

*adala, DeN.* (36). The Ladylike Tailless Oakblue. Dawnas—S. Burma. VR. (= *adulans, DeN.*).

64a (60b). Below not uniform. Unh no tornal green scales or lobe.

64 (65). Unh centre of wing broad yellow, base, margin and all F washed purple over purple brown ; unh markings obscure. ♂ border F 2 mm. to 3 at apex ; ♀ paler, border 3–6 mm.

α. ♂ above dark shining violet blue.

* *perimuta perimuta, M.* (30–37). The Yellowdisc Tailless Oakblue. Sikkim—Tavoy. NR.

β. ♂ above bright shining metallic blue.

*perimuta regia, Evans.* (36–38). Mergui—S. Burma. NR.

65 (64). Unh centre of wing and apex whitish violet, rest rather pale purple brown washed pale purple ; unf discal band unusually broad and running to tornus ; unh markings well defined. ♂ ♀ above shining metallic blue, purple in a side light, border 2 mm. to 5 at apex ; H only indications of blue in cell.

**H. 50. Amblypodia—The Oakblues. (Plate 28.)—(*contd.*)**

* *duessa, Doh.* (32-38). The Violetdisc Oakblue. Dawnas—S. Burma. R.

66a (17b). Unf with a costal spot base 11 between basal and central cell spots; also costal spots over central and end cell spots. Unh basal and central spots crowded together, irides touching, a prominent spot base 8, discal band completely dislocated at v2 and discontinuous to dorsum.

*Ganesa* Group.

66b (72). Unf discal band continued full width to v2 and often extending into 1, usually broken more or less at v4; inner cell spots reaching mv.

66 (67a). Tailless. ♂ ♀ above rather pale blue, border F 3 mm. to 6 at apex, a prominent spot end cell on either side of which there is a whitish patch. Unh no tornal green scales. Apex F acute and inner margin much produced, H costa concave, apex pointed, termen straight to v6.

α. Below creamy white, markings F prominently dark brown, but somewhat overlaid whitish; nearly invisible on H.

* *ganesa ganesa, M.* (32-37). The Tailless Bushblue. Chitral—Kumaon. C.

β. Below bases rather pale purple brown; markings F more prominent not overlaid whitish; H markings prominent.

*ganesa watsoni, Evans.* Assam—Shan States. R.

67a (66). Tailed. Below rather pale to dark chocolate brown with white patches; spots large, prominent, white edged.

67b (70a). Unf discal band more or less broken, but never so that the inner edge of the spot in 4 is in line with the outer edge of the spot in 3.

67c (69). Unf discal spot not so regular as in 69.

67 (68). Unh no prominent white patch mid costa and uph blue colour confined to cell. Unh no tornal green scales. H costa straight and apex sharp.

α. ♂ above dull violet blue, border 3 mm. to 5 at apex, prominent spot end cell and a whitish patch beyond. ♀ duller, white area F extending to inside cell.

*paraganesa paraganesa, DeN.* (30-34). The Dusky Bushblue. Kumaon—Bhutan. NR.

β. ♂ above entirely dark brown except for a few scattered blue scales at base F. ♀ blue scaling as extensive as in ♂ of last.

*paraganesa zephyretta, Doh.* Assam—Shan States. R.

68 (67). Unh prominent white patch mid costa, as prominent or more so than the apical patches F and H.

α. Very much as β, but ♂ above purple instead of blue

*ammonides ariel, Doh.* (29-31). The Malayan Bushblue. Assam—N. Shan States. VR.

β. ♂ above pale metallic blue, border 2 mm. F and H, to 5 at apex F. ♀ paler and duller. Below dark purple brown rendering white patches very prominent. Wings very rounded. No tornal green scales.

*ammonides ammonides, Doh.* (29-31). Dawnas—S. Burma. R.

69 (67c). Unf inner edges of spots in 5 and 6 in line and regular, also inner edge spot in 4 against middle of spot in 3. ♂ above rather dull violet blue, border F 1-2½ mm. to 3-4 at apex, extending along the costa. ♀ rather pale blue, border 2½-5 mm., a white patch on either side of the black spot end cell; 1 mm. on H and veins widely blackened just before the border. Below rather dark purple brown, white patches more or less prominent and may obscure the markings: unh with tornal green scales.

*birmana, M.* (30-39). The Burmese Bushblue. Manipur—Shan States. NR. (= *arisba, DeN.*).

70a (67b). Unf discal band completely dislocated at v4, so that the inner edge of the spot in 4 is in line with the outer edge of the spot in 3. ♀ as No. 69 but paler and the white patch on F is larger and extends well into the cell. ♂ above pale violet blue. Unh tornal green scales more or less prominent. Below much as No. 69. F dorsum produced. Uph cilia nearly uniform.

70 (71). ♂ border less than 1 mm. on F and H. Below uniform pale brown all over, white patches obscure.

*aberrans, DeN.* (32-38). The Pale Bushblue. Manipur—Shan States. R.

71 (70). ♂ above border 1 mm. to 2 at apex F, continued slightly inwards along the veins. Below bases pale brown, rest whitish. Uph cilia chequered white at end of each vein.

* *ellisi, Evans.* (37-42). Ellis' Bush-blue. Manipur—Shan States. R. (= *dascia, Swin.*)

**H. 50. Amblypodia—The Oakblues. (Plate 28).**—(*contd.*)

72 (66b). Unf discal band continued full width to v3 only, a small spot against the outer edge in 2; band irregular, semi-broken at v5, inner spots in cell small, not extending to mv. Below dark purple brown, washed purple, outer half F and margin H pale brown. H apex very dark and usually a prominent quadrate white patch mid costa; discal band attenuate towards dorsum; with tornal green scales. Very short tail at v3 and usual tail at v2. Lobed.

*α*. ♂ above shining violet blue, border 2 mm. to 5 at apex, 2 on H. Wings very rounded. Unf discal band unbroken.

*abseus mackwoodi, Ril.* (32-35). The Aberrant Bushblue. Ceylon. R.

*β*. ♂ above dull purple, border 4 mm. to 7 at apex, 5 on H. ♀ pale blue, border 3-6 mm. and a spot end cell.

* *abseus indicus, Riley.* Sikkim—Tavoy. NR.

*γ*. ♂ above brilliant deep purple blue, border 2 mm. to 4 at apex, 2 on H. ♀ pale metallic violet blue, border as ♂.

*abseus abseus, Hew.* Tavoy—S. Burma. R. (= *amphea, Fd.*).

73a (1a). Unf cell spots abnormal.

73b (81). Unf very dark brown, cell usually containing a pale spot near end and sometimes a second spot nearer base, no dark spots: discal band continuous, bent at v4, flanked by a pale area on either side, no costal spots; pale areas vary from purple brown to violet or whitish. Unh with a dark basal area or basal spots absorbed into a dark sub-basal band.

*Apidanus* Group.

73c (76a). Unh discal spots in 7 and 6 form a dark bar coalesced to the dark spot end cell, all inner edges in line. H lobe prominent and with tornal green scales.

73d (75). H with a well defined tail at v2. Below markings large, well defined on a violet brown ground. Apex F and tornus H produced.

73 (74). Unh a large basally bifid black spot mid costa not reaching the black area, which extends from base to mid cell and from costa to dorsum. ♂ above deep rich purple blue, no border. ♀ bright purple, borders broad and continued along dorsum F.

* *diardi, Hew.* (40-54). The Bifid Plushblue. Sikkim—Dawnas. NR. (= *capeta Hew*).

74 (73). Unh spot mid costa continued as a broad band across cell to base dorsum, above it there is a pale area from the base along the costa. ♂ ♀ above as last.

*fulgida, Hew.* (36-46). The Shining Plushblue. Sikkim—Shan States. NR. (= *singapura Dist*).

75 (73d). Tailless. Wing produced in ♂ rounded in ♀. ♂ above most brilliant dark purple blue, no border. ♀ pale blue shading to purple, borders broad. Unf lower outer area pale brown, discal band abbreviated. Unh almost entirely dark brown with a whitish violet fascia from mid termen to mid dorsum, a small apical patch and another mid costa, which sometimes extends to the dorsum; markings as last, but nearly invisible, basal third all black.

* *anniella arlegal, Doh.* (34-44). The Brilliant Plushblue. Shan States—S. Burma. R.

76a (73c). Unh discal spots in 7 and 6 much more macular and irregular, inner edge of spot in 6 in line with outer edge of spot end cell. Wings rounded.

76b (79a). Tailed and lobed.

76 (77a). Unh basal area very broadly dark brown, unmarked; central area broadly pale brown, followed by a dark oblique submarginal area and about tornus pale again; metallic green scales at tornus well developed.

*α*. ♂ above purple blue, border F 1 mm. to 2 at apex, 1½ on H. ♀ pale blue, borders broad.

**apidanus ahamus, Doh.* (34-40). The Plain Plushblue. Cachar—Karens. R.

*β*. ♂ above darker, border less than 1 mm. ♀ as last.

*apidanus karlaphilus, Fr.* Dawnas—S. Burma. R. (= *dorimond, Stoll.*).

77a (76). Unh basal area variegated; extreme base at costa pale, discal markings shining purple brown on a dark area, central and tornal areas pale.

77 (78). Unh no metallic tornal green scales, lobe small; sub-basal dark band extends to mid cell. ♂ above bright purple blue, border 2 mm. to 3 at apex, 3 on H. ♀ rather pale purple, borders broader.

*adriana, DeN.* (38-44). The Variegated Plushblue. Sikkim—Shan States. NR

**H. 50. Amblypodia.—The Oakblues. (Plate 28).—(*contd.*)**

78 (77). Unh with tornal green scales, lobe prominent ; sub-basal dark band to dorsum. Above as last.

*asoka, DeN.* (40-44). The Spangled Plushblue. Sikkim—Shan States. NR. (=*chola, N.*).

79a (76b). No lobe or tail. F slightly concave below the sharply pointed apex, ♂ above shining deep rich ultramarine blue. ♀ purple with very broad borders.

79 (80). Unh broad basal dark area crossed near base by a pale band from base to costa, pale area beyond the dark basal area narrow, tornal green scales prominent. Unf obscure short reddish streak along costa from base. ♂ above border a thread, 1 mm. at apex ; H toothed at each vein especially at v2, margin F rather crenulate.

* *chinensis Fd.* (43-46). The Chinese Plushblue. Sikkim—Assam. NR (= *lazula, N. : moelleri, DeN.*).

80 (78). Unh no pale band on the dark basal area ; pale discal area much broader.

α. Unh no tornal green scales, all markings obscure. Unf pale cell spots prominent. Margins not so crenulate as last. ♂ above border from 1 mm. to 2 at apex. Blue colour deeper than in last.

*areste areste, Hew.* (40-46). The Tailless Plushblue. Sikkim-Assam. R. (= *paluna, M.*).

β. Unh with tornal green scales ; all markings more prominent Margins more crenulate. Unf pale cell spots obscure. ♂ border narrower.

*areste arestina, Evans.* (41-46). N & S Shan States. R.

81 (73b). Below pale ochreous brown devoid of markings except for a narrow obscure dark brown postdiscal and marginal fascia and some very obscure basal spots H. ♂ above bright shining violet blue, becoming purple outwardly. ♀ paler and bluer. Apex F pointed ; H rounded, no tail or lobe or tornal green scales unh.

α. ♂ above border under 1 mm. ♀ border 2-6 F and 1 on H.

* *fulla ignara, Riley.* (36-38). The Spotless Oakblue. Sikkim—Burma. R.

β. ♂ above border 1-2½ at apex ; ♀ paler than last.

*fulla andamanica. WM & DeN.* (38-39). Andamans. R. (=*subfasciata, M*).

**H. 51. Surendra.—The Acacia Blues. (Plate 29.)**

1a (4). Above purple with broad dark borders. Below dark brown with very narrow black markings, some of which may be outwardly silver edged ; unf a spot middle and end cell, 2 costal spots, a highly irregular discal line and submarginal spots. Unh basal and discal irregular line and submarginal dots ; lobe black and a black spot in 2 with obscure green metallic scales ; ground colour darkened mid termen F and about discal line H.

1b (3). ♂ tailed at v2 ; ♀ at vs 2 and 3.

1 (?). H highly excavated between 1 and 2, anal lobe large. ♂ upf dark purple blue ; ♀ brown, paler brown on disc.

α. Small. ♀ pale discal area usually sharp defined. ♂ blue on H.

*quercetorum discalis, M.* (30-34). The Common Acacia Blue. Ceylon. C.

β. Small. ♀ pale discal area F diffuse. ♂ blue colour more restricted and absent on H.

*quercetorum biplagiata, But.* S. India. C.

γ. Larger, ♀ as last. ♂ with blue on H. Specimens from Assam, N. Burma and the Andamans are larger than from elsewhere.

**quercetorum quercetorum. M.* (30-40). Dun—Burma. Andamans. C. (= *latimargo, M.*).

2 (1). H straight between vs. 1 and 2, lobe small. ♂ above dark purple blue, borders half as wide as in last. ♀ dull lilac blue, shading basally to dull metallic blue ; variable, may be all dull metallic blue. Tails very short and narrow.

*amisena, Hew.* (32-40). The Burmese Acacia Blue. Tavoy—S. Burma. R. (= *palowna, Stg.*).

3 (1b). ♂ ♀ Tailless, only a tooth at v2. ♂ above dark purple blue, borders as last. ♀ dark brown, bases broadly paler.

*florimel, Doh.* (36). The Tailless Acacia Blue. Tavoy—S. Burma. R.

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**H. 51. Surendra.—The Acacia Blues. (Plate 29).—(*contd.*)**

4 (1a). Below pale ochreous brown, glossed vinous, no cell or costal spot unf. Unf a waved silvery discal line ; unh an irregular silver line near base. another through end cell and a third post discal ; tornal markings small. Single tail at v2.

α. ♂ above deep shining purple, border 2 mm. to 5 at apex. ♀ pale purple blue, more restricted than in ♂.

*todara todara, M.* (34-38). The Silver Streaked Acacia Blue. S. India. R.

β. ♂ as last. ♀ rather pale purple, not purple blue.

**todara distorta, DeN.* Sikkim—Shan States. R.

γ. ♀ pale metallic blue, border 1 mm. to 4 at apex, a black spot end cell. Below darker and markings rather differently arranged, being a cross between No. 4 and No. 1 ; unf discal line obliquely bent in from v3 to costa ; unh central line as in No. 1 and post-discal line obscure as in No. 1.

*todara karennia, Evans.* (32). Karen—Dawnas. VR.

**H. 52. Mota.—The Saffron. (Plate 29).**

♂ above dark purple with a broad dark apex and narrow border ; ♀ purple blue, paler, borderF broad and all H dark brown. Below saffron ; unf a dark bar end cell, a postdiscal and submarginal line, area between clouded ; unh almost entirely covered with large dark brown irregular markings, white edged and coalesced, lobe ochreous and termen irrorated white scales.

**massyla, Hew.* (42-35). The Saffron. Bhutan—Burma. R.

**H. 53. Semanga—The Rededge. (Plate 29.)**

Above shining violet blue, border F 2mm. to 4 at apex ; H costa broadly dark, tornus orange from dorsum to 3, crowned black. Below pale ochreous brown ; F a discal and submarginal ferruginous line ; H basal area unmarked, outer half ferruginous red, inwardly with series of oblique metallic blue streaks, centrally with large obscure black spots, most prominent in 2 and 6 irrorated white scales along termen, especially near tornus.

**superba, Druce.* (32). The Rededge. Mergui. VR.

**H.54. Loxura.—The Yamfly. (Plate 29.)**

Above orange, broad black apex and termen F, narrow border H, bases more or less suffused dark brown. Below ochreous with more or less obscure pale brown basal spots, discal and submarginal bands.

α. Upf inner edge of black apex evenly arched ; bases slightly darker, suffused.

*atymnus arcuata, M.* (36-40). The Yamfly. Ceylon. NR.

β. From as next to a dark orange with broader black apex, extending to base along costa, inner edge evenly arched, bases broadly suffused, vs 6 and 7 H prominently black. Apex F more rounded.

*atymnus surya, M.* S. India. NR.

γ. Dark apex narrower, inner edge obtusely angled, DSF not basally suffused, vs 6 and 7 H not black. Paler than last.

**atymnus atymnus, Cr.* Central India—Mussoorie—Burma. C. (= *continentalis, mahara, Fr.*).

δ. Larger, brighter orange, apex broader, evenly arched and penetrated by yellow veins, base prominently suffused dark brown and in H practically the whole wing suffused.

*atymnus prabha, M.* (40-42). Andamans. Nicobars. NR.

**H.55. Yasoda.—The Branded Yamfly. (Plate 29).**

Above orange with a black apex and border F ; upf with a black bar end cell and 3 discal spots ; uph a bar end cell and an oblique discal band ; the black markings may be reduced or absent. Below ochreous to ochreous brown with more or less obscure black rings, arranged irregularly towards base and as a discal band, which turns white towards dorsum H ; tornal markings obsolete.

**tripunctata, Hew.* (42-40). The Branded Yamfly. Sikkim-Burma. R.

**H.56. Drina.—The Yams. (Plate 29).**

1 (2). ♂♀ above dark brown, outwardly darker ; H discal row white spots followed by a submarginal row, larger in ♀. Below silky white, narrow discal and submarginal brown bands, tornal markings H obscure. (= *usira*, *Fd.*).

**donina*, *Hew.* (45–48). The Brown Yam. Lushai Hills—Burma. NR.

2 (1). ♂ upf except for base and broad termen, shining purple blue and the veins on the blue area pale yellow ; ♀ all dark brown ; uph dark brown with 2 large tornal white spots and a broad white sub-tornal band. Below white, apex and margin F broad dark chocolate brown, the inner third of the dark area being darker ; unh upper half of termen dark brown and a broad sub-tornal dark band.

*maneia*, *Hew.* (42–46). The Blue Yam. Mergui. R.

**H.57. Apharitis—The Silverlines.**

Below with silver centred broad dark bars and spots on a pale ground.

1a (3). Unf sub-apical markings form a Y, consisting of a bar mid 4–5 placed centrally below 2 costal spots. Above mostly tawny, no blue ; tornus uph and unh not orange.

1 (2). Above bases clear yellow. Upf pale apical spot in 6 only and never white. Dorsum F excavate posteriorly. Unf submarginal band inwardly edged by crescentic lines.

*epargyros*, *Evers.* (30–34). The Yellow Silverline. Baluchistan. R.

2 (1). Above bases grey. Upf pale apical spot in 6 may extend into 5 and 4 and is white. Unf submarginal band inwardly edged straight lines. Dorsum F evenly convex.

α. Unh lowest of the 3 sub-basal spots rounded or elongate. Above bright tawny base only suffused brown scales, black bands prominent in ♂, may be obsolete in ♀ ; on F marginal and submarginal black bands well separated

*acamas hypargyrus*, *But.* (30–36). The Tawny Silverline. Cutch. Sind, Baluchistan. Punjab. R.

β. Below as last. Above much darker, suffused brown scales ; in ♂ leaving only some tawny colour round the black spots F and very little on H ; ♀ more tawny : marginal and submarginal lines widened and often confluent, forming a single very broad dusky band.

*acamas chitralensis*, *Riley* (34–38). Chitral. NR.

3 (1a). Unf sub-apical markings consist of an inner short and an outer long bar, each made up of 2 conjoined spots ; these bars may be parallel or may form a V. ♂ above iridescent pale blue, ♀ dull blue ; no orange patches upf or plumbeous scales. Below pale brownish ochreous, bands concolorous with ground and faintly outlined black, silver centres prominent. Very variable.

*lilacinus*, *M.* (32–36). The Lilac Silverline. Bangalore, Kasauli, Assam, Mhow, Malda, Hardwar. R. (= *æstivus*, *Swin.*).

**H.58. Spindasis.—The Silverlines. (Plate 29).**

Below as *Apharitis*. Above dark brown, males usually blue or blue shot. Unf apical markings as *lilacinus*.

1a (12). Unh sub-basal band ends on vl and is never continued along it.

1b (8a). Unf with a basal streak along the costa from the central cell bar ; this streak in the DSF may only be indicated by a few silver scales and be hard to see. The basal markings in the cell unf consist of a streak from the base under the scv and a spot beyond, the two being conjoined or separate ; in the DSF the streak may be absent.

1c (3a). Unh sub-basal band entirely confluent from the costa to vl. Below yellow with conspicuous red bands, more or less black edged.

1 (2). ♂ above not or only very faintly blue shot, ♀ without conspicuous plumbeous scales.

α. Upf orange areas restricted. Unh central band more separated from the postdiscal band, rendering discal yellow area wider.

*vulcanus fusca*, *M.* (26–34). The Common Silverline. Ceylon. C. (= *minima*, *But.*).

β. Upf orange areas wider. Unh bands more evenly spaced.

**vulcanus vulcanus*, *F.* India. C. (= *etolus*, *Cr.* : *bracteatus*, *But.* : *tigrinus*, *M.*).

**H.58. Spindasis—The Silverlines. (Plate 29)—(*contd.*)**

γ. ♂ upf orange markings reduced to a few streaks ; ♀ plain dark brown. Below bands very wide.

*vulcanus tavoyana, Evans.* Tavoy. R.

2 (1). ♂ uph blue shot ; ♀ with plumbeous scales on H and dorsal area F. Upf orange areas pale, restricted and suffused darker scales.

α. ♂ above pale blue shot only on H.

*schistacea schistacea, M.* (28–37). The Plumbeous Silverline. Ceylon. S India. NR.

β. ♂ above lower half F and all H pale blue shot.

*schistacea gabriel Swin.* (30). N. Burma. R.

3a (1c). Unh sub-basal band broken into 3 spots, the upper 2 of which may be conjoined.

3b (7). Unf arrangement of sub-apical spots normal, outer spots in 4 and 6, inner spots in 5 and 7, each pair one above the other and conjoined ; the inner edge of the spot in 6 may touch the outer edge of the spot in 5 thereby forming a rough V, submarginal line never continuous.

3 (4a). ♂ above dusky violet brown at apex F, rest dull greenish grey, shot light blue. ♀ except for dark apex shining plumbeous silvery. Below dull reddish brown, markings very narrow. ? Aberration.

*abnormis, M.* (40–44). The Abnormal Silverline. S. India. VR.

4a (3). ♂ above dark blue shot, ♀ dark brown, the blue colour more or less replaced by plumbeous scales.

4 (5a). Below brick red with well defined markings ♂ above intense black, shot dark blue up to v3. ♀ upf with a small diffuse orange spot, the blue shot replaced by a slight dusting of blue scales.

*nubilus, M.* (27–32). The Clouded Silverline. Ceylon. R.

5a (4). Below not brick red.

5 (6). ♀ with plumbeous scales above. ♂ ♀ with a well defined triangular orange patch upf. ♂ upf blue shot area not above v2.

α. ♂ upf dark brown with a more or less well defined orange patch upf, large and extending into 2 in the WSF, small and obscure in the DSF ; WSF only shot blue in 1, in DSF carried up into 2 and 3. Below pale yellow in WSF with well-defined markings, DSF khaki to reddish brown with markings tending to become obsolete.

*ictis ceylanica, Fd.* (27–32). The Common Silverline. Ceylon. C. ( = *greeni, Heron*).

β. Larger. Upf orange patch well defined and almost invariably present. WSF below with very well defined dark bands : DSF khaki with bands nearly obsolete.

*ictis ictis, Hew.* (30–35). India. C.

6 (5). ♀ above no plumbeous scales. ♂ upf at most a small obscure orange patch ; in ♀ the patch is oval or circular, not triangular and does not extend below v3. Below khaki to reddish brown, markings well defined in WSF, faint in DSF. ♂ upf shot blue area above v2.

α. Comparatively small.

*elima fairliei, Ormiston.* (28–35). The Scarce Shot Silverline. Ceylon. NR.

β. Rather larger. Very variable.

*elima elima, M.* (32–38). India. R. ( = *khurdanus, lunulifera, trifurcata, M.*).

γ. Much larger.

*elima uniformis, M.* (36-42). Chitral—Kashmir. NR.

7 (8b). Unf sub-apical markings abnormal ; 3 outer spots in 4, 5 and 6 that in 5 slightly shifted in ; single inner spot in 7 midway between the outer spots and the discal band. ♂ above dark brown with a prominent orange patch upf, most of F blue shot, which colour extends over the orange area, presenting a peculiar appearance. ♀ dark brown, no plumbeous scales. Below khaki with narrow markings rather as in the DSF of *ictis*.

*maximus, El.* (35–42). The Karen Silverline. Shan States—Dawnas. NR.

8a (1b). Unf no costal markings above the scv, between the central cell bar and the base.

8b (11). Unf basal markings in cell as for 1b.

8 (9a). Unf sub-marginal line obscure, absent or discontinuous. Below bands very narrowly black-edged. Above dark brown, ♂ blue shot F and H; ♀ with the blue shot replaced by plumbeous scales.

**H.58. Spindasis. The Silverlines. (Plate 29)—(*contd*).**

α. Below pale ochreous, bands concolorous or slightly darker than the ground, silver line often absent. ♂ ♀ with a more or less well developed range patch upf, often absent.

*nipalicus nipalicus*, *M.* (36-42). The Silvergrey Silverline. Kulu—Nepal. R. ( = *zaffra*, *DeN*).

β. Below pale cinnoman red, bands darker, silver line obsolete, ♂ ♀ usually with a prominent orange patch.

*nipalicus sani*, *DeN.* Sikkim R. ( = *rukma*, *DeN.*).

γ. Below as last, rather darker. ♂ upf darker, no orange patch. Below pale to dark cinnamon red, silver lines may be prominent; lobe maroon or black; discal band F and H more broken. ♀ above no orange, H and discal area F pale silver grey, scales closely set, not sparse as in other races.

*nipalicus evansii*, *Tytler.* Nagas, Shan States—Karens. R.

9a (8). Unf submarginal line continuous and sharply defined.

9 (10). Below khaki with narrow dark bands. Above dark brown, ♂ shot blue and with no orange patch upf.

*rukmini*. *DeN.* (33-38). The Khaki Silverline. Sikkim—Assam. VR.

10 (9). Below pale yellow, with broader black bands. ♂ shot blue, often with small orange spot upf: ♀ brown, with broad orange area.

*elwesi*, *Riley.* Elwes' Silverline. Kumaon to Assam. VR.

11 (8b). Unf base cell with a continuous club-shaped streak. Above dark brown, no orange on F; ♂ shot blue F and H. Below pale yellow with black bands to cinnamon red with red bands.

**syama peguanus*, *M* (26-40). The Club Silverline. Orissa Sikkim—Burma. C. ( = *orissanus*, *M.*).

12 (1a). Unh sub-basal band continued along vl to or nearly to the lower end of the central band, sometimes macular. Unf basal marking consists of a broad bar across the cell, the upper edge of which is joined to the base by a streak over the scv and on either side of it, which streak does not reach the central cell spot; submarginal line usually continuous, but may be merged to the sub-marginal line; sub-apical spots V shaped. Above as last.

α. Below bands very broad, ground colour pale yellow to reddish ochreous, bands usually red, very rarely black or nearly so, unh the sub-basal band in the DSF may not be continued along vl.

*lohita lazularia*, *M.* (36-42). The Long-banded Silverline. Ceylon. S. India R. ( = *concanus*, *M* ).

β. Below pale yellow, bands black to red, very variable. Unf sub-marginal line wide and joined to the marginal line in the WSF., thin and macular in the DSF.

*lohita himalayanus*, *M* (30-42). Sikkim—N. Burma. C.

γ. As last, but smaller. Unf submarginal line always narrow and continuous.

*lohita seliga*, *Fr.* (28-34). Karens—S. Burma. C.

δ. Below bands always black, submarginal line narrow and continuous. Unh sub-basal band always meets the central band.

*lohita zoilus*, *M.* (30-36). Andamans. NR. ( = *zebrinus*, *M*).

**H.59. Zesius.—The Redspot. (Plate 29).**

♂ above copper red outwardly darker and inwardly glossed violet with a fuscous border, 1 mm.; ♀ rather pale powdery blue, may be purple tinged, with broad borders of variable width; uph with 2 tornal black spots, orange crowned in ♀. Below pale grey with white edged brown markings, turning reddish towards base, arranged as in *Amblypodia*; discal bands fairly regular; tornal spots black, crowned orange or entirely orange.

**chrysomallus*, *Hub.* (38-44). The Redspot. Ceylon. S. India. Orissa, NR.

**H.60. Dacalana.—The Tufted Royal. (Plate 29).**

♂ above pale shining azure blue, border F ½ mm.-5 at apex; uph with a white patch mid costa; ♀ paler, with a prominent white patch end cell F. Below rather pale brown, crossed by an even white band, central on F, discal on H and followed by a thin sub-marginal black line; tornal lobe black and an orange crowned black spot in 2 with white scales between. ♂ unf with a tuft of

**H. 60. Dacalana.—The Tufted Royal (Plate 29).—(*contd.*)**

white hairs mid dorsum ; uph brand above base 6 covered with blue scales and on a polished area.

1 (2). F v9 absent. Unh white band very narrow, just under 1 mm. Considerable seasonal variation.

**pennicilligera*, *DeN.* (38-42). The Assam Tufted Royal. Assam—Dawnas. NR.

2 (1). F v9 present. Unh white band just over 1 mm.

*vidura burmana*, *M.* (35–38). The Malay Tufted Royal. Dawnas—S. Burma. NR.

**H.61. Pratapa.—The Tufted Royals. (Plate 29).**

Above blue with broad black apex F and H and borders F. Below pale brown to white with a thin discal line and tornal orange spots.

1 (2a). Below pale brown with a white band as in *Dacalana*, but broader and expanding towards the dorsum and costa. Above as *Dacalana* ; considerable seasonal variation in width of borders. ♂ unf tuft black ; brand uph dark brown, oval, on a polished area.

*cotys*, *Hew* (33-37). The White-banded Royal. Sikkim—N. Burma. NR. (= *cotoides*, *Tyt*).

2a (1). Below no white band. ♀ uph veins darkened.

2 (3a). Below polished silver grey with a discal series of separate black spots, broad bars end cells and a prominent spot mid 7 H. ♂ upf bright shining blue ; upf a large black spot bases 2 and 3 and another mid 1. ♀ pale purple blue turning whitish towards apex F. ♂ unf tuft brown ; dark brand uph on a black polished area.

*ctesia*, *Hew* (38-40). The Bi-spot Royal Kumaon—Dawnas. NR.

3a (2). Below a narrow dark discal line, no spots.

3 (4a). Unf discal line not below v2 ; unh upper bar of discal line in 7 shifted in. Below ♂ polished silver ; ♀ white with an ochreous tinge ; no bars end cells. ♂ above shining blue ; ♀ pale blue. ♂ unf tuft black ; uph brand large and dark.

α. ♂ above paler and greenish. Below discal line faint and macular.

*blanka sudica*, *Evans*. (37–42). The Silver Royal. S. India. R.

β. ♂ upf with blue streaks on the black apex. Uph blue extends into 6. Below discal line continuous.

*blanka argentea*, *Aurivill.* (30–40). Sikkim– Dawnas. R. (= *lucida*, *Druce* ; *minturna*, *Fr*).

4a (3). Unf discal line continued to v1 except in faintly marked specimens.

4 (5a). Below white, discal line macular, bars end cells faint ; unh upper bar of discal line in 7 shifted out. ♂ above shining blue, ♀ pale blue or purple blue, turning whitish outwardly on F. ♂ unf tuft black ; uph dark brand very large and conspicuous on a dark area.

α. ♂ above darker, border F straight to dorsum or nearly so. Below discal line often faint.

*deva deva*, *M.* (32-40). The White Royal. Ceylon, S. India—Central Provinces. R.

β. ♂ paler. WSF ♂ upf border prominently angled mid 1 and continued along dorsum.

**deva lila*, *M.* Mussoorie-Dawnas. NR (= *ingada*, *Fr.*).

5a (4). Unf discal line continuous, not macular.

5 (6a). Below pale grey with a white bar end cell, prominent on F. ♂ above shining deep blue. ♀ pale violet blue, white beyond end cell F. Lobe dark orange. ♂ unf tuft dark brown ; brand uph small and inconspicuous.

α. ♂ above blue restricted on F, just enters cell and not into 2, border angled mid 1 and continued to mid dorsum. ♀ uph all dark brown, powdered with violet blue scales.

*icetas icetas*, *Hew.* (30-37). The Dark Blue Royal. Kangra—Kumaon. R.

β. ♂ upf blue crosses cell and enters base 2 ; border angled mid 1 and continued ½ along dorsum. ♀ uph violet blue.

*icetas extensa*, *Evans*. Sikkim—Dawnas. R.

γ. ♂ above blue paler and with a greenish tinge, much more extensive, entirely fills cell and extends to base 3 ; border not angled mid 1 or continued along dorsum.

*icetas mishmia*, *Evans*, Mishmi Hills. VR.

**H. 61. Pratapa.—The Tufted Royals. (Plate 29.)**—(*contd*).

6a (5). Below no bars end cells.

6 (7). Below pale brown discal line on F inwardly curved at upper end, outwardly white edged. ♂ upf blue to base 4. ♀ above pale dull powdery blue, border broad and angled mid 1 on F, broad on H. ♂ unf tuft pale yellow ; uph brand large, but inconspicuous.

α. ♂ above shining purple blue ; H border 1 mm.

* *icetoides carmentalis, DeN.* (30-32). The Blue Royal. Assam. NR.

β. ♂ above shining blue ; H border a thread. Unh tornal orange area large, portions in 1a and 2 united.

*icetoides icetoides, El.* Karens—S. Burma. R.

7 (6). Below creamy brown, unf discal line straight at costa, lower part curved, nearer end cell than termen. ♂ above pale shining blue, apex F very broadly black, but border reduced to a thread at tornus, no border H. ♀ pale purple blue. ♂ unf 2 tufts, inner long and black, outer short and white Wings produced ; inner tail broad and ciliate.

*cleobis, God.* (27-38) The Broadtail Royal. S. India. Dun—Dawnas. NR.

**H. 62. Maneca.—The Slate Royal.**

♂ above dull slatey blue, broad dark apices and border F, border H 2 mm. and veins dark. ♀ slightly paler and border narrower. Lobe prominently ochreous and cilia white. Below greyish white with narrow bars ends cells and a macular discal line ; tornal markings H reduced. ♂ uph brand large and black.

*bhotea, M.* (26-27). The Slate Royal. Sikkim—Assam. R..

**H. 63. Britomartis.—The Baby Royals.**

Very similar to *Pratapa*, but smaller. Body blue above.—Below pale brown, discal line orange, no bars ends cells, marginal markings obscure ; tornal markings H prominent and a broad orange area.

1 (2). Unf discal line midway between end cell and termen ; unh orange at tornus in 1a and 2 not coalesced. ♂ above rather pale shining blue, black apex F extends into end cell and all space 3, border at tornus 1 mm., and a thread on H. ♂ pale dull slatey blue, border not quite so broad as in ♂ and H costa and apex broadly dark brown. No ♂ brand.

*buto, DeN.* (32). The Baby Royal. Assam—Burma. NR. (= *valentia, Swin.*).

2 (1). Unf discal line much nearer end cell than margin ; unh tornal orange in 1a and 2 coalesced. ♂ above shining cerulean blue, apex F reduced, inner edge curved, not straight. ♂ upf a large prominent patch of modified scales before end cell and in bases 2 and 3, which disappears with petrol.

*cleoboides, El.* (25-28). The Azure Royal. Karens—S. Burma. R.

**H. 64. Creusa.—The Black-branded Royal.**

♂ above pale shining greenish blue apex F broadly black reducing to 2 mm at the tornus, bases 2 and 3 blue ; a black brand in outer half and cell ; H apex dark brown. ♀ paler and blue more extensive. Below very pale brown, no bars end cells, discal line dark ferruginous, on F nearer cell than termen ; H tornal markings small ; orange crowns separate and well separated from the discal band.

*culta, DeN.* (32). The Black-branded Royal. Assam—S. Burma. R.

**H.65. Tajuria.—The Royals. (Plate 29).**

Very like *Pratapa* and the ♀♀ are hard to distinguish, but in *Pratapa* the veins on the hindwing are dusky, which is not the case in *Tajuria*.

1a (10a). Unh irrorated white scales in 1 extend sideways into 1a and 2 and sometimes into 3.

1b (5a). Below ochreous or ferruginous.

1 (2a). Unh tornal spots crowned by a metallic green line. ♂ above dark purple blue, very restricted. ♀ paler, blue colour enters 3 on F. Below ♂ dark chocolate, ♀ yellow to pale ferruginous.

α. ♂ upf blue in lower half of cell, basal ⅔ of 1a and 1.

*jangala ravata, M.* (32-42). The Chocolate Royal. Sikkim—Burma. C.

β. ♂ upf blue powdery, confined to basal ½ of 1a and 1.

*jangala andamanica, WM.* Andamans. NR.

2a (1). Unh no metallic green line over tornal spots.

**H 65. Tajuria.—The Royals. (Plate 29).—(*contd.*)**

2 (3a). Below yellow, no discal line ; unh tornal irrorated area surmounted by a white irregular line. ♂ above rich shining dark blue in 1a and 1 F and just entering cell ; H blue with broad dark border.

*donatana. DeN.* (32). The Dawna Royal. Dawnas. VR.

3a (2). Below discal line prominent and white edged.

3 (4). Unh a white irregular line over the tornal irrorated area. Below yellow, discal line unf about midway between the termen and end cell. Upf ♂ black : ♀ lower discal area pale blue.

α. ♂ uph costa only pale blue extending to v5. ♀ blue just enters base 2 ; uph with only sparse blue scales about base to middle.

*megistia megistia, Hew.* (32-34). The Orange and Black Royal. Assam. NR.

β. ♂ uph all pale shining blue, except for narrow black termen. ♀ blue more extensive on F and H all blue except apex.

*megistia thria, DeN.* Dawnas—S. Burma. R.

4 (3). Unh no white line over the tornal irrorated area. Below chestnut, discal line unf much nearer end cell than termen.

α. ♂ upf black ; uph costa only pale blue, extending to v5 and into cell. Unf discalline sinuous.

*yajna yajna, Doh.* (34). The Chestnut and Black Royal. Mussoorie-Kumaon. VR.

β. As last, but uph blue costal area extends to v4 and into cell. Unf discal line straight. ♀ upf lower discal area and uph pale powdery blue.

**yajna istroidea, DeN.* (32-34). Sikkim—Assam. R. (*= teza, Swin.*).

γ. ♂ upf shining pale blue in 1a and 1, not reaching v1 ; uph all blue except for narrow terminal border. Below paler. Lobe above mostly fulvous.

*yajna ellisi, Evans.* (34) N. Shan States. R.

5a (1b). Below pale brown to brown sometimes rosy in No. 8. ♂ ♀ above pale blue except for costa and apex and termen F. ♂ upf denser black beyond end cell (except 7b).

5b (7a). Below with bars end cells F and H ; brown discal line midway between termen and end cell and area beyond paler ; unh upper end of discal line usually shifted out.

5 (6). ♂ shining green on F in basal ½ of 2 and ½ of 3 : ♀ blue in ⅔ of 2 and ½ of 3 ; uph lower ½ of 6 blue to termen and in ♀ basal ⅔ of 6 blue. Unh orange tornal spots prominent.

*mantra, Fd.* (42-44). Felder's Royal. Tavoy—S. Burma. VR.

6 (5). ♂ pale non-shining blue, on F only to base 2 ; ♀ in ½ of 2 and ½ of 3. ♂ ♀ uph blue only in base of 6. Unh orange tornal spots very reduced.

*æta, DeN.* (47-48). DeNicéville's Royal. Karens—S. Burma. VR.

7a (5b). Below bar end cell absent on H and at most faint on F ; unf discal line nearer termen than end cell ; ground colour uniform.

7b (6). Below brown, discal line not prominently white edged. ♂ upf a prominent fuscous area of modified scales, disappearing with petrol, at and beyond end cell. ♂ upf blue in ⅔ cell, 1a and 1 ; in ♀ extending into 2 and 3.

7 (8). Unh discal line not conspicuously broken at v4. ♂ above pale shining greenish blue ; uph costa broadly dark brown, filling all 6 except extreme base.

*ogyges, DeN.* (47-48). The Large Branded Royal. Moulmein—S. Burma. R.

8 (7). Unh discal line conspicuously broken at v4 ; below often rosy, especially in ♀. ♀ above pale blue.

*melastigma, DeN.* (40-46). The Branded Royal, N. Kanara, Kumaon—Burma. R.

9 (7b). Below very pale brown, discal line prominently white edged ; tornal orange markings H large. ♂ ♀ above pale blue, rather powdery, extending on F in ♂ into basal ½ or ½ of 2, in ♀ up to base 3 and most of 2 ; uph lobe orange crowned.

*ister, Hew.* (32-39). The Uncertain Royal. Assam. Bhamo. VR.

10a (1a). Unh tornal white irrorations confined to 1. Below white to pale brown, discal line not white edged.

10b (27). Uuh no broad discal band.

10c (17a). Unh no spot on dorsum between end of discal line and base. Below with a narrow discal line, which may be absent.

**H. 65. Tajuria.—The Royals. (Plate 29).—(*contd.*)**

10d (15a). Below discal line about midway between termen and end cell, continuous.

10 (11a). Unh discal line not parallel to termen, very straight and continuous to the middle of 2 from the costa. Below pale brown, discal line ferruginous, submarginal line prominent, no bars end cells. ♂ above pale blue in DsF, reaching base 3 ; WSF darker, blue more restricted ; ♀ paler, with a white spot beyond end cell F ; uph lobe mostly red.

*diæus, Hew.* (33-36). The Straightline Royal. Mussoorie—N. Burma. R. (= *thydia, Tyt.*).

11a (10). Unh discal line parallel to termen, very irregular, brown. Below cell bars usually present. Uph lobe mostly black.

11b (14). Above pale cerulean blue ; ♂ upf blue in most of cell and to v3, terminal border narrow in 1a and 1 : ♀ blue very extensive. Below white to grey.

11 (12-13). ♂ above very pale cerulean blue, entering 3 upf ; ♀ area beyond cell upf prominently very pale.

*albiplaga, DeN.* (34-37). The Pallid Royal. Sikkim—Tavoy. R. (=

12 (11-13). Darker ; ♂ upf no blue in 3. Below darker, discal lines prominent, tornal spots reduced. Often no tail at v2.

*sebonga, Tyt.* (35). Tytler's Royal. Manipur. R.

13 (11-12). As last. Below paler, discal lines absent, tornal spots prominent. ♀ upf black apex broader, evenly curved, no tooth.

*isæus, Hew.* (35). The Bornean Royal. S. Burma (DeN.). VR. (= *tyro, DeN.*)

14 (11b). Above dusky dark powdery blue ; ♂ upf blue colour may just enter 2, terminal border broad ; ♀ blue colour just enters base 3. Below pale brown : considerable seasonal variation.

*thyia, DeN.* (30-36). The Dusky Royal. Assam. R. (= *palescens, Druce*).

15a (10d). Below discal line much nearer termen than end cell, macular and may be absent ; pale grey to white, bars end cells present or absent, on H discal line broken in at 3 and 4, so that lower part is shifted in compared to the upper part ; tornal markings more or less prominent. ♀ uph nearly always with a wavy black discal line.

15 (16). Above cilia conspicuously white. ♂ above slatey blue, on F in lower ½ of cell, basal ½ of 1a and 1, but may extend to base 3 ; on H there may be a wavy discal line as in ♀. ♀ upf blue more extensive, to beyond end cell where it is paler, sometimes whitish. ♂ ♀ uph 2 tornal black spots in 1 and 2.

*jehana, M.* (30-37). The Plains Blue Royal. Ceylon. S. India—Bengal and Dun. NR. (= *arida, Riley*).

♂. *v. ceylonica, Riley.* Blue upf extending above v2. NR.

16 (15). Cilia brown, or long hairs only white. ♂ above dark shining blue or greenish blue ; upf cell blue and may extend to base 3. ♀ greyish blue, becoming whitish outwardly on F.

α. Darker blue. Smaller.

* *cippus longinus, F.* (31-45). The Peacock Royal. Ceylon. C.

β. Brighter, larger.

*cippus cippus, F.* India, Burma. C. (= *pseudolonginus, Db.*).

17a (10c). Unh a small black spot on dorsum between the end of the discal band and the base. Below white ; H tornal markings very reduced.

17 (18a). Unh no black spot in 8 internal to the discal band. Below bars end cells wide, discal line broken, very irregular on H ; unh black spot at apex. Upf disc white, turning bluish at base and dorsum, broad black border extending along dorsum, bluish white scales at tornus ; uph bluish, turning white beyond end cell and base 6, rest of 6 dark brown to costa. ♀ as ♂ but wings more rounded.

* *illurgis, Hew.* (38-42). The White Royal. Mussoorie—N. Burma. R.

18a (17). Unh a black spot just below v8 between end cell and base.

18b (20). Below with a narrow irregular discal line, bars end cells narrow.

18 (19). Unf discal line in 1 not concave. Above as in last with white patches F and H.

*illurgioides, DeN.* (38-42). The Scarce White Royal. Mussoorie—Assam. R.

**R. 65. Tajuria.—The Royals. (Plate 29).—(*contd.*)**

19 (18). Unf discal line concave in 1. Above ♂ pale blue, extending on upf to termen in 1 and filling basal ⅔ of 2. ♀ with broad dark border at termen upf and along costa uph ; upf blue colour extending to 3 and turning whitish on disc.

*luculentus nela, Swin.* (38-42). The Chinese Royal. Assam. VR.

20 (18b). Below no discal line, but with several large irregularly placed black spots. Above pale blue turning whitish on disc F and beyond cell H, with broad dark borders F and costa H, extending along costa F. ♀ white with borders as in ♂.

* *maculata, Hew.* (36-44). The Spotted Royal. Sikkim—Burma. NR. (= *albipicta, Fr.*).

21 (10b). Below white with a broad dark discal band, no bars end cells. Above ♂ shining violet blue, border 1 mm to 3 at apex F. ♀ dark brown.

α. Lobe above mostly black. ♀ uph with a row of submarginal white spots. Below discal band dark brown, outwardly defined by a white line, diffused outwardly ; H a waved line above tornus quite separate from the tornal markings, black spot in 2.

*jalindra macarita, Fr.* (36-44). The Banded Royal. S. India. R.

β. As last. ♀ uph a white subterminal line in 1-2. Below discal band chocolate ; H tornal green scales more prominent ; white diffused areas beyond discal band more extensive.

* *jalindra indra, M.* Orissa. Sikkim—Dawnas. NR.

γ. Lobe above mostly orange. ♀ uph no white spots. Below ground colour bluish white, discal band ferruginous brown, on F only separated from the marginal ferruginous area by a narrow white line to v2 ; H discal and marginal dark areas coalesced, no wavy discal line above tornus ; tornal orange very extensive.

*jalindra tarpina, Hew.* Andamans. NR.

**H. 66. Charana.—The Mandarin Blue. (Plate 29).**

1 (2). ♂ above pale blue, black apex fills ⅓ of cell and the dark border extends along the dorsum ; H costal border broad. ♀ above dark brown, tornal area H white with black spots. Below discal band ferruginous brown, confluent with paler ferruginous brown marginal area : marked as in H 65-21.

**mandarinus, Hew.* (40-44). The Mandarin Blue, Sikkim—Burma. Andamans. NR.

2 (1). ♂ above rich deep blue, much restricted. ♀ tornal white area uph reduced. Below border purple brown with no white submarginal line.

*cepheis, DeN.* (45). The Cachar Mandarin Blue. Assam. VR.

**H.67. Jacoona.—The Great Imperial.**

♂ above pale shining blue at base F and H and a blue bar beyond the cell F on the black apex ; ♀ dark brown : uph tornal area white with two large black spots. Below white, apex F broadly and H narrowly silky ochreous ; unh tornal spots prominent and irrorated metallic scales, a very broken black discal line from 1a to 4. ♂ upf black brand on disc only showing with petrol.

*anasuja, Fd.* (46-50). The Great Imperial. N. Shan States.—S. Burma. VR.

**H.68. Manto.—The Green Imperial.**

♂ above bright shining greenish blue with a broad black apex F. ♀ dark brown with a broad white tornal area uph bearing black spots. Below ♂ chrome yellow outwardly darker ; ♀ paler ; H with prominent tornal spots.

*hypoleuca martina, Hew.* (44-47). The Green Imperial. Tavoy—S. Burma. R.

**H.69. Mantoides—The Brush Imperial.**

♂ ♀ above dark brown with a broad white tornal area uph, bearing black spots. Below silky ; F dorsum broadly white, remainder ochreous, darkening towards apex ; H white, costa and apex ochreous ; a discal black line, very obscure on F and prominent tornal spots H.

*licinius, Druce.* (36-44). The Brush Imperial. Dawnas—S. Burma. VR.

**H.70. Neocheritra.—The Grand Imperials. (Plate 29).**

1 (2). ♂ upf base shining pale blue, apex dark brown, inwardly angled and there may be white patch in 2; uph dark brown, tornal area broadly white, crowned by some scattered blue scales and bearing black spots. ♀ dark brown with sometimes a white discal patch F; H tornal area as ♂. Below white, apices ochreous brown, broad in F and bearing two suffused white fasciæ, narrower on H and bearing one white fascia: H with an irregular discal line from 1a to 2 and prominent tornal black spots, sprinkled with metallic blue scales.

* *fabronia Hew.* (37–44). The Pale Grand Imperial. Sikkim—Burma. R.

2 (1). ♂ above dark purple blue with broad black apex F and border H tornus whitish, with a black spot in 1. ♀ dark brown with the tornus H white, bearing two confluent black spots. Below white with unmarked bright ochreous apices and the usual tornal markings H.

*amrita, Fd.* (35–50). The Dark Grand Imperial. Karens—S. Burma. VR.

**H.71. Purlisa.—The Giant Imperial.**

♂ above shining blue with broad black apex F and border H. Below dark ashy with a darker postdiscal band and submarginal lunules; tornal area sprinkled metallic scales.

*gigantea, Dist.* (52). The Giant Imperial. S. Burma. VR.

**H.72. Suasa.—The Red Imperial. (Plate 29).**

♂ upf orange with black apex and border, base powdered bright blue scales, veins black; uph pale blue with black apex and costa, black tornal spots in 1a and 2. ♀ upf orange with dark brown apex and border and base broadly darkened; uph dark brown with tornal white area, bearing black spots. Below white; F a broad ochreous brown discal band from costa to v3 continuing to v1, as a narrow brown line, margin broadly ochreous brown; H a prominent black spot in 7 near base in ♂ only, a narrow discal and submarginal brown line, ending in prominent black spot in 7, prominent tornal spots.

* *lisides, Hew.* (27–30). The Red Imperial. Assam—Burma. R.

**H.73. Cheritrella.—The Truncate Imperial. (Plate 29).**

♂ upf dark purple blue with broad black apex and border; uph pale shining blue with broad dark brown borders, lobe ochreous. ♀ much paler blue with two discal white spots upf. Below rather pale ochreous brown with darker markings, few and obscure on F, numerous on H; tornal markings H absent except for some white irroration.

* *truncipennis, DeN.* (32–36). The Truncate Imperial. Sikkim—Karens. R.

**H.74.—Neomyrina.—The White Imperial. (Plate 29).**

♂ ♀ above white with broad black apex F, shot blue in ♂. Below white with broad grey, black edged, markings arranged as in *Amblypodia* and with tornal black spots, crowned with metallic green scales.

**hiemalis, God and Salv.* (50–58). The White Imperial. Dawnas, S. Burma. NR.

**H.75. Cheritra.—The Common Imperial. (Plate 29).**

♂ ♀ above dark brown with a purple tinge in ♂; a white tornal area H, bearing black spots. Below very faint bars at end of cells; a narrow discal line F; a discal and submarginal line H and tornal black spots. Crowned metallic scales.

α. Below pure white, apex F faintly tinged ochreous; unf discal line black, highly waved and macular.

*freja pseudojaftra, M.* (38–42). The Common Imperial. Ceylon. NR.

β. Unf discal line regular and continuous. Uph white area more extensive.

*freja jaffra, But.* S. India. NR.

γ. Below ♂ pale ochreous, darkening at apex and termen F and apex H; ♀ white, outwardly ochreous. Unf discal line ochreous.

* *freja freja, F.* Kumaon—Tavoy. NR.

δ. Below ♂ ♀ white; ♂ costa narrowly, apex and termen broadly bright ochreous; ♀ the ochreous apex unf very wide. Unf discal line ochreous.

*freja regia, Evans.* Mergui. C.

**H.76. Ticherra.—The Blue Imperial.**

♂ above dark purple blue, border 1 mm.; black tornal spots H coalesced and crowned by two white spots. ♀ dark brown. Below WSF bright ochreous, faintly marked as in *Cheritra*; DSF pale brown, markings more prominent and some obscure central markings.

*acte, M.* (34-38). The Blue Imperial. Kumaon—Burma. NR. (= *symira, Hew.: idina, Fr.*).

**H.77. Biduanda.—The Posies. (Plate 29).**

1a (3). Unf white, discal band not of same width throughout and broken in middle; unh upper spot of discal band in line with rest. Unf prominent chocolate spots in cell, narrow ferruginous or brown line end cell and chocolate discal band, which is very wide to v3 and merges into the chocolate apex; margin below v3 ochreous, inwardly edged by a dark line. Unh white with basal brown rings or spots, an irregular double discal line, the upper end of which is darker and filled in as a single line, a very narrow submarginal line; prominent black spots and metallic scales. Tails v1 4 mm., v2 7 mm., ♀ v3 1½ mm.; no ♂ brand.

1 (2). Unf discal band well separated from line end cell; a narrow dark line beyond upper part of discal band, the outer edge of which and of the discal band is obscurely white edged; the discal band in 2 consists of 2 narrow chocolate or ferruginous lines, which may coalesce, and in 3 of 2 chocolate lines, which are often coalesced. ♂ above dark brown; costa H orange and tornal area broadly pale shining blue with black marginal spots in 1a and 2.

*α.* Below markings not so pronounced and paler. ♂ above paler; upf with a sharply defined white patch at bases 2 and 3. ♀ dark brown with an orange discal patch on F and some faint tornal grey scales H.

*melisa cyara, Hew.* (20-25). The Blue Posy. Sikkim—N. Burma. VR.

β. Below strongly marked. ♂ upf no white patch. ♀ dark brown with a small orange spot end cell F, which may be obsolete or diffused; pale tornal area of variable extent and colour from bluish to white and more or less divided by darker veins.

* *melisa melisa, Hew.* Karens—S. Burma NR.

2 (1) Unf upper part of discal band coalesced to upper part of bar end cell and to line beyond, outwardly edged by a narrow, clearly defined, irregular white line; discal band in 2 consists of a single ochreous line and in 1 of a single chocolate line (or 2 spots); submarginal line regular, not waved, widened inwardly in 1 nearly to the discal band. Unh 2 narrow single lines at end cell (in *melisa*, there is an outer narrow line and an inner double line) which may be coalesced. ♂ above dark shining violet blue, border 1 mm. tornal spots in 1 and 2 crowned by bluish white scales. ♀ dark brown, a prominent orange discal spot on F; a broad bluish white tornal area H, which is not divided by darker veins.

*nicévillei, Doh.* (30-33). The Violet Posy. Tavoy—S. Burma. R.

3a (1a). Unf ochreous, apex broadly washed brown, markings brown on the brown area, ochreous elsewhere; discal band of even width unbroken. Unh very like 1a, but upper part of discal band in 7 shifted in to over cell bar. Unf spot base cell, bars mid and end cell. ♀ dark brown, a broad orange discal patch F and bluish tornus H.

3 (4). ♂ no brand. Above dark brown; upf with an orange discal patch, beyond which the apex is deep violet blue, sparsely frosted white scales; uph termen and tornus frosted white scales, mixed anteriorly with blue scales. Tails v1 2 mm., v2 5 mm., v3 1 mm.

*scudderii, Doh.* (27-30). The Frosted Posy. Dawnas to S. Burma. VR.

4 (3) ♂ uph a shining dark brown brand about base 6 and shining yellow beyond. ♂ above dark violet blue, no border; a more or less obscure or obsolete reddish discal patch on F. Tails v1 4 mm., v2 10 mm., v3 in ♀ 2 mm.

* *thesmia fabricii, M.* (32-35). The Dark Posy. Dawnas—S. Burma. NR.

β. ♂ upf discal red patch more prominent; ♀ orange red area more restricted. Unf apex not brown washed.

*thesmia thesmia, Hew.* S. Mergui. R.

**H. 78. Marmessus.—The Common Posy. (Plate 29).**

Upf orange red, base and apex dark brown · ♂ uph pale shining blue, becoming purple towards apex and cerulean towards tornus; ♀ uph dark

**78. Marmessus.—Common Posy. (Plate 29.)—(*contd*).**

brown with a more or less prominent orange discal patch. Below as H 77·4, but unf all ochreous and unh upper part of discal band in 6 and 7 shifted in, apex broadly pale ochreous. Tails vl 4 mm., v2 10 mm., v3 2 mm.

**lisias boisduvali, M.* (26-30). The Common Posy. Karen—S. Burma. C.

**H. 79. Eoxylides.—The Branded Imperial.**

Above dark brown ; ♂ upf some sparse blue scales above mid dorsum ; uph a broad white tornal area to v5, lobe black and two confluent tornal black spots, the white area edged bluish in ♂. Below bright ferruginous : F unmarked ; H tornal area as above, an irregular black discal line and a white bar end cell. Tails vl 2 mm., v2 10 mm., v3 2 mm.

*tharis, Hub.* (34-36). The Branded Imperial. Dawnas—S. Burma. VR.

**H. 80. Thamala.—The Cardinal. (Plate 29).**

♂ above brilliant deep scarlet ; upf a dark border and some of the veins black. ♀ dark brown ; a large central orange area F intersected by a broad dark brown streak from base running below cell ; uph tornus widely irrorated bluish scales. Below crimson overlaid ochreous scales, obscure bars end cells a narrow dark obscure waved discal line ; tornal markings reduced and some sparse white scales. There is a second form of underside, ochreous not overlying crimson scales ; dusky in ♂ and markings obscure ; clear in ♀ and markings prominent. Tails vl 2 mm., v2 3 mm., in ♂ ; ♀ vl 3 mm. and v2 7 mm.

**marciana miniata, M.* (34-36). The Cardinal. Bhamo—S. Burma. NR.

**H. 81. Rathinda.—The Monkeypuzzle. (Plate 29).**

♂ ♀ above dark brown ; a white spot end cell F continued into 2 and 3 ; 2 black tornal spots H crowned by a dark ochreous fascia. Below ochreous brown to white ; on F some irregular dark basal markings, a curved white discal band, beyond which the apex is ochreous brown, bearing a white submarginal line ; H covered with numerous irregular markings. H angled at v4. Tails vl 2 mm., v2 6 mm., v3 2½ mm.

**amor, F.* (26-28). The Monkeypuzzle. Ceylon. S. India.—Assam. NR. (= *triopus, Cr.*).

**H. 82. Horaga.—The Onyxes. (Plate 29).**

Mostly cyaneous blue above with a dark blue apex F and a prominent white discal patch. Below ochreous or brown with a prominent white discal band across both wings to middle of 1 on H, whence to the dorsum there is a metallic green line ; tornal markings prominent and crowned by a metallic green line, which may run to costa. ♂ in Nos. 1 and 2 has an oval ochreous brand along basal half of vl, dorsum bowed. Tails vl 2 mm., v2 4 mm., and v3 1 mm.

1a (3a). Unf ♂ with a well defined brand. Unh white band well defined.

1 (2). ♂ ♀ above cyaneous blue, but shade is very variable. Unf either the white band or the dark line bordering it outwardly extends well above v6.

α. Upf blue colour paler and brighter, extending well beyond the end of the discal white patch in 2 and 3 ; white patch not into 1 ; H blue to termen. Unf discal band to costa. Unh discal band of even width. Below ochreous to ochreous brown. Tail at v3 nearly obsolete.

*anyx cingalensis, M.* (30-33). The Common Onyx. Ceylon—S. India. R.

β. Upf blue colour darker, but very variable, never extending beyond the discal white patch, which, always enters 1 ; very variable below. Tail at v3 short.

**onyx onyx, M.* (27-31). Kangra—S. Burma. NR. (= *sikkima, moulmeina, M.*).

γ. ♂ upf white patch small, divided by black veins and not below v2 ; blue colour absent or restricted to powdery scales at base ; H greenish. ♀ white patch very large ; base sprinkled dull blue scales ; H all brown. Below dark ochreous brown. Tail at v3 comparatively long.

*onyx rana, DeN.* (30-33). Andamans. NR.

2 (1). ♀ above shining violet. ♂ upf white patch very small, 1½ mm. Below ochreous brown, white band very narrow and straight and on F neither the white band nor the dark line bordering it extend above v6.

*halba, Dist.* (28-30). The Malay Onyx. Mergui. VR.

2a (1a). No ♂ brand. Unh white band very narrow and sullied. Unf discal band never above v6.

**H. 82. Horaga.—The Onyxes. (Plate 29).**—*(contd.)*

3 (4). Unh white band diffused outwards, straight. ♂ upf dark brown, white patch nearly to vl ; H shining violet nearly to termen. Below dark ochreous brown, outwardly paler.

*albimacula, WM. & DeN.* (25–27). The Violet Onyx. Andamans. VR.

4 (3). Unh discal band not diffused outwards, somewhat convex. ♂ ♀ above dark brown or violet brown, discal white patch F may extend into 1. Below uniform, rather dark brownish ochreous.

*viola, M.* (22–23). The Brown Onyx. S. India. Kangra—Burma. R.

**H. 83. Catapoecelima.—The Tinsels. (Plate 29).**

Termen scalloped and cilia prominently chequered ; H not angled, lobe ill developed also tornal markings below. Tails vl 1 mm., v2 4½ mm. and v3 1½ mm.

1a (3). Below with numerous more or less regular ochreous bands and spots, edged metallic green and black.

1 (2). Below rather pale brown bands and spots comparatively irregular, upper part of discal band on F broken up and postdiscal band beyond highly irregular ; on H spots at base and mid 7 separate. ♂ above dark violet blue, border 1 mm. ♀ pale violet blue, border broader.

α. In ♀ borders above narrower and inwardly scalloped along termen F.

*elegans myositina, Fruh.* (28–32). The Common Tinsel. Ceylon, S. India. R.

β. Borders broader ; in ♀ 3 mm., and inwardly even along termen F.

**elegans major, Fruh.* Orissa. Mussoorie—Burma. NR.

2 (1). Below bright ochreous, bands and spots regular. Above as last.

*subochracea El.* (27–29). The Yellow Tinsel. Nagas—Tavy. R.

3 (1a). Below no regular spots or bands ; chrome yellow, densely and evenly striated with black and bearing scattered greenish silver metallic scales and streaks. ♂ above smoky purple black, obscurely violet shot ; on F near base there may be some powdery dull blue scales ; ♀ as No. 1.

*delicatum, DeN.* (32–35). The Dark Tinsel, Sikkim—Assam. R.

**H. 84. Chilaria.—The Tits. (Plate 29).**

1a (3). Unh a prominent black spot in 7 towards base ; unf discal band completely broken at v4.

1 (2). Unf small black costal spot above mid cell. ♂ above pale blue with broad black apex and termen F, narrow black costa and apex H ; the black apex F shot deep purple blue ; blue colour F of very variable extent. ♀ brown, lower part of disc F may be whitish ; H tornal area broadly bluish white and veins darkened. Below white, faint bars end cells. Making ochreous, black edged ; upper part discal band on F much wider than lower part ; discal band on H broken in 4 and 6 ; tornal spots prominent, orange crowned. Tails delicate, vl 4 mm., and v2 2mm.

*othona, Hew.* (24–27). The Orchid Tit. South India. Dun—Burma. Andamans. NR. (= *eltola, Hew*).

2 (1). Unf no spot on costa. ♂ above pale blue, broadly black bordered, the inner portion of the border shot iridescent purple blue. ♀ dark brown, discs whitish. Below pale grey, marking concolorous and black edged. Tails vl 3mm. and v2 1½mm.

α. Unh upper spot of discal band black. ♂ blue colour very restricted.

*kina kina, Hew.* (26–29). The Blue Tit. Dun—Kumaon. R.

β. Unh upper spot of discal band as rest. Blue colour very variable.

**kina cachara, M.* (27–31). Sikkim—Dawnas. NR.

3 (1a). Unh no spot in 7 towards base. ♂ above dark purple blue, except for black apex and border shot shining purple. ♀ brown, prominent white tornal area H, bearing marginal black spots. Below faint bars end cells ; discal band narrow ochreous, white edged, placed much nearer end cell than margin, straight and continuous on F, broken sharply on H at v4 ; very little orange at tornus.

α. Larger. Below white, apex F broadly ochreous. Tails vl 8 mm. and v2 4 mm.

*merguia watsoni Swin.* (27–29). The Purple Tit. Chin—Karens. R.

β. Smaller. Below grey, apex F broadly pale ochreous. Tails vl 6 mm. and v2 4 mm.

*merguia merguia, Doh.* (21–29). Dawnas—S. Burma. R.

**H.85. Hypolycæna.—The Tits. (Plate 29).**

1a (3). Unh a prominent spot in 7 near base. Tails vl 5 mm. v2 4 mm.

1 (2). Unh basal spot in 7 black. ♂ above dark reddish purple brown ; ♀ dark brown, obscure black tornal spots H, crowned deep orange. Below white, faint bars end cells ; black edged obscure ochreous discal band, broken at v4 on F and H and upper part wider ; small tornal spots, obscurely yellow crowned.

*nilgirica, M.* (28–32). The Nilgiri Tit. Ceylon, S. India. R.

2 (1). Unh basal spot in 7 ochreous. Above very dark shining brown ; ♀ paler and duller; prominent orange crowned tornal spots H. Below white, all markings narrow ochreous, white edged.

*α.* Uph spot in 2 only crowned ochreous. Unf discal band slightly shifted in at v4, apex broadly and margin narrowly ochreous ; unh discal band broken at v4 and slightly at v6 : tornal markings prominent, space 1 mostly ochreous.

**thecloides thecloides, Fd.* (30–32). The Brown Tit. Tavoy—S. Burma. R.

*β.* Uph ochreous tornal area wider, from 1a to 3. Unf discal band straight. termen only narrowly ochreous. Unh discal band straight to v4 : ochreous crown to spot in 2 prominent but hardly spreading sideways, space 1 being mostly dark.

*thecloides nicobarica, Evans.* (31–33). Nicobars. R.

3 (1a). Unh no spot in 7 near base. ♂ above changing from black to shining purple except for black borders. Upf prominent black area of modified scales on disc. ♀ above dark brown ; uph an obscure white disconnected discal fascia in 1–3 : tornal spot in 2 prominently white edged and a narrow white submarginal fascia in 3–4. Below grey with faint ochreous tinge, double bars end cells ; an ochreous, white edged, discal line, continuous on F, broken on H at v4 and v6 tornal spot in 2 prominent, ochreous crowned. Tails vl 6 mm. and v2 5 mm.

*α.* Smaller. In ♀ uph tornal spot in 1 hardly defined.

*erylus himavantus, Fruh.* (32–36). The Common Tit. Sikkim—Burma. C.

*β.* Larger. In ♀ uph tornal spot in 1 defined by white edging.

*erylus andamana, M.* (34–38). Andamans. NR.

**H.86. Zeltus.—The Fluffy Tit. (Plate 29).**

♂ above very pale blue, powdery on F and confined to base ; the broad black apex F and H shot deep purple. ♀ dark brown, tornal spots in 1a and 2 prominently white ringed and on a white area. Below bluish white, apices broadly pale ochreous brown, markings darker ; double lines end cells ; a narrow discal line, continuous on F, broken at v3, 4 and 6 on H ; prominent black costal spot near base 7 ; tornal spots prominent, but not crowned orange. Tails fluffy at vl 13mm., at v2 7 mm.

**etolus, F.* (28–32). The Fluffy Tit. Sikkim—Burma. NR. (= *amasa, Hew.*).

**H.87. Artipe.—The Green Flash. (Plate 29).**

♂ above shining blue, black bordered ; ♀ dark brown ; lobe green, black centred. Below verdigris green with a narrow white discal line and end cell bars ; in ♀ tornal area H broadly white.

**eryx, L.* (♂ 40, ♀ 56). The Green Flash. Sikkim—Burma. Andamans. R. (= *amyntor, Herbst.*).

*v. skinneri, WM. & DeN.* Below yellow. VR.

**H.88. Deudoryx.—The Cornelians. (Plate 29).**

♂ above red with broad dark brown border, ♀ brown with sometimes the disc F paler. Below with cell bars and a discal band ; H lobe black, orange crowned, a black spot in 2 and some metallic scales in 1. Above lobe black centred.

1 (2). Below markings very broad, continuous. Below uniform brown, markings white edged. ♂ scarlet above.

*α.* Smaller. Below rather dark brown.

*epijarbas epijarbas, M.* (34–38). The Cornelian. Ceylon, S. India—Orissa. NR.

*β.* Larger. Pale brown below.

*epijarbas ancus, Fruh.* (38–43). Chitral—Kumaon. NR.

*γ.* Very variable ; usually rather dark brown below.

**H. 90 Rapala.—The Flashes. (Plate 29).—(*contd.*)**

ringed, dark spots ; F spot in cell, double spot end cell, 3 discal and 3 apical spots ; H 2 costal spots in 7, inner one very large, spot in cell double, spot end cell and discal row. ♂ brand shining dark blue ; tuft brown, prominent.

* *subguttata, El.* (32-35). The Spotted Flash. Karens—S. Burma. R

2a (1). ♂ uph brand not into cell. Below banded, not spotted.

2b (4). Below pattern abnormal.

2 (3). Below rather pale brown, marked with narrow white lines ; F line near end cell, continued into 1, a pair of discal lines joined at the lower end, a short apical line and lunular submarginal lines ; H line through centre of cell from 1-8, a discal pair, broken at 1, a postdiscal line and 2 submarginal lunular lines ; prominent tornal black spots, crowned orange and metallic scales. ♂ above brilliant shining blue, confined to base on F. ♀ dull pale purple blue, bases darkened and borders broad. ♂ brand small, pale grey in centre of polished patch ; tuft black, prominent.

* *kessuma deliochus, Hew.* (30-33). The Whiteline Flash. Shan States—S. Burma. R.

3 (2). Below yellowish white, F and H a very large greenish white patch end cell and a very broad discal band, margins greenish brown ; tornal markings small, no orange. ♂ above dark shining purple, shot brilliant blue on H. borders black on F. ♀ unknown. ♂ brand pale brown, circular, behind origin v7 and with a detached portion at base 6 ; tuft brown, short.

* *abnormis, El.* (30-33). The Abnormal Flash. Karens—S. Burma. R.

4a (2b). Below pattern normal.

4b (7). ♂ unf tuft mid dorsum.

4 (5-6). Below very pale brown, markings obscure, broad, white edged either side. ♂ above shining purple blue, broad black border on F. ♀ paler duller and border narrower. ♂ brand dark brown, elongated, runs along over v7 and fills base 6 ; tuft pale brown inconspicuous. Apex F and tornus H more produced than usual.

*refulgens DeN.* (31-33). The Refulgent Flash. Nepal. Assam—Karens. R.

5 (4-6). Below bright ferruginous with a dark ferruginous discal band, normally placed on H, but on F just beyond end cell ; no bars end cells ; tornal markings reduced, but crowned powdery white scales. ♂ above purple brown, shot deep blue at base F and over most of H ; ♀ pale ferruginous ; lobe ferruginous. ♂ brand pale yellow, circular, above origin v7 and with a detached portion along the SCV between origins vs 6 and 7 ; tuft brown, inconspicuous.

*lankana, M.* (38-41). The Malabar Flash. Ceylon. S. India. R.

6 (4-5). Below bright ochreous. ♀ paler ; discal line narrow, brown, outwardly white edged and on F curved in at upper end. ♂ above red, broad border F running from 1a along dorsum ; black border F and red area H shot rich purple. ♀ brown. ♂ brand as in last ; tuft pale ochreous to ferruginous.

*a.* ♂ above coppery red. ♀ often paler on disc upf. Below pale yellow. Very variable.

* *suffusa suffusa. M.* (33-37). The Suffused Flash. Assam—S. Burma. NR. (= *testa, Swin*).

*β.* ♂ above bright red, not entering cell F and veins not black ; H cell and dorsum and veins black ; ♀ cupreous on disc. Below ♂ coppery ochreous ; ♀ pale yellow, markings prominent ; tornal spot in 2 crowned ochreous.

*suffusa rubicunda, Evans.* (33-35). Andamans. R.

7 (4b). ♂ unf no tuft mid dorsum ; brand uph as in No. 6a, but smaller. Above dull red with broad fuscous borders F and dusky veins, the red colour may be more or less fuscous overlaid, especially in ♀. Lobe small, ochreous. Below pale brown, single white bars end cells, discal bands rather broad, slightly darker than ground, white edged outwardly and on F much curved in apically ; on H curved parallel to termen. ♂ tornal spots in 2 prominent, orange crowned.

*hades, DeN.* (39-44). The Malay Flash. Dawnas—S. Burma. VR.

8a (1a). ♂ uph brand entirely above v7 and mostly behind its origin.

8 (9a). ♂ unf large polished area mid dorsum ; brand brown, large, circular ; tuft dark brown, prominent ; upf a black discal patch of modified scales. ♂ above very dark blue, shot brilliant deep blue ; ♀ dull purple, shading to the dark brown border. Below ♂ DSF greenish ochreous, WSF ochreous brown ; ♀ bright ochreous ; discal line narrow, outwardly white edged, broken on H.

**H.88. Deudoryx.—The Cornelians. (Plate 29).—(*contd.*)**

*epijarbas amatius*, *Fruh.* (36–44). Sikkim—Burma, Andamans, Nicobars, C.

* *v. diara*, *Swin.* Below very dark brown, outer part of the disc F and upper half H white, crossed by black veins. R.

2 (1). Below pale polished grey, outwardly pale ferruginous; markings narrow, catenulated, prominently white edged, slightly darker than the ground, of separated spots on F, conjoined on H; discal band H much nearer margin and upper spot in line. ♂ above paler red; ♀ may have a pale red discal area on F.

α. Below markings prominent, complete.

* *hypargyria gaetulia DeN.* (40–44). The Scarce Cornelian. Assam—N. Shan States. R.

β. Below markings becoming obsolete and may be reduced to spots in 2, 3, 4H.

*hypargyria hypargyria*, E1. Karens. VR.

**H.89. Virachola.—The Guava Blues. (Plate 29).**

Below markings broad, bars end cells more or less white edged, discal band and tornal markings as in *Deudoryx*. ♂ brand uph always to base 6.

1a (4). Unf discal band continuous.

1b (3). Unh no spot base 7.

1 (2). Unf discal band straight, prominent Tuft dark brown. Below pale brown, markings slightly darker; no spot in cell F nor near base 7 H. ♂ above dark fuscous brown sometimes paler on disc, shot brilliant violet blue on lower part of disc F and on most of H; tornal spot in 2 usually present and some bluish shales between it and the lobe. ♀ paler fuscous brown, darker towards end cell F, beyond which there is an ochreous patch and sometimes a similar tornal patch; H marginal spot in 2 usually prominent and orange crowned.

*isocrates*, *F.* (40–44). The Common Guava Blue Ceylon, India to N. Shan states. C. (= *dohertyi*, *Tyt.*).

2 (1). Unf discal band absent or faint. Tuft pale brown. Termen F convex in ♂. ♂ above dull purple, glossed pink. Below rich dark vinous buff, markings very obscure.

*rosacea*, *Tytler.* (40–44). Manipur—N. Shan States. The Rosy Guava Blue. R.

3 (1b). Unh nearly always spot base 7. Unf discal band elbowed: rarely a spot in cell. Below very variable, pale to dark brown, often purple washed; markings darker than ground, centrally brown, outwardly black and more or less white edged. ♂ above blue with a broad dark brown border F, much blacker in cell, beyond which there may be a dark ochreous patch. ♀ blue colour paler and more extensive, a whitish or pale ochreous patch beyond cell F.

α. ♂ above pale, shining blue. ♀ pale blue, white patch diffused. Below dull, markings less prominent.

*perse ghela*, *Fruh.* (48–52). The Large Guava Blue. Ceylon. S. India. NR.

β. Darker, but very variable above and below. ♀ upf white patch smaller, not diffused. ♂ unf a brand above mid v1.

*perse perse*. *Hew.* Kangra—Assam, Orissa. Burma. NR.

4 (1a). Unf discal band broken, lower part shifted in. Unh spot base 7 and usually spot in cell. Below paler, markings dark and prominent. Unf always a spot in cell. Upf ♂ ♀ ochreous or white patch absent.

*smilis*, *Hew.* (48–52). The Scarce Guava Blue. Andamans. S. Burma. R. (= *maseas*, *Fr.*).

**H. 90. Rapala.—The Flashes. (Plate 29).**

Normal pattern, below consists of a bar end cell and a discal band followed by a more or less distinct submarginal line; tornal spots more or less distinct, Nos. 1-3 are abnormal.

1a (8a). ♂ uph brand fills base of 6 or (in Nos. 5, 6 and 6a) has a detached portion along the base of v6.

1 (2a). ♂ uph brand enters cell. ♂ above dark indigo, shot brilliant deep blue, borders broad; ♀ shining indigo blue with narrower border. Below purple brown, washed shining purple and bearing a number of large, white

**H. 90. Rapala.—The Flashes. (Plate 29).—(*contd.*)**

*tara, DeN.* (33-41). The Assam Flash. Kumaon—Assam. NR. (=*francesca. Swin.*).

9a (8). ♂ unf no polished area.

9b (17a). Unh discal band more or less curved and parallel to termen.

9c (13a). ♂ above blue.

9 (10a). Below bands very dark brown, broad, not white edged; ground colour variable from uniform pale to dark ochreous brown, bases often darker. Body below prominently ochreous. ♂ above dark blue, shot most brilliant rich deep blue, border F broad. ♀ above rich shining blue, veins black. ♂ brand as No. 7; tuft dark brown, broad.

α. Upf no brand in ♂. Variable with the season.

*sphinx sphinx, F.* (36-38). The Brilliant Flash. Assam—Rangoon. R. (= *nicevillei, Swin.*).

β. Upf a sharply defined brand at bases 2 and 3 in ♂.

*sphinx rhoecus, DeN.* S. Shan States—S. Burma. R.

10a (9). Below bands white edged; unh band white edged both sides and lower edge cell bar touches the discal band or nearly so; tornal markings prominent, spot in 2 orange ringed and crowned.

10 (11a). Unf discal band double, comparatively broad and white edged on both sides. ♂ above dark shining greenish indigo blue, shading on F to a shining black border; not shot blue. ♀ pale shining steely blue, more or less purple glossed. Below from slatey brown, often with a purple or greenish gloss to nearly white in the DSF; markings always darker than the ground, sometimes as narrow as in No. 10 or so wide that the discal band coalesces with the cell bars. ♂ brand pale brown, circular; tuft black or dark brown; upf bases vs. 2, 3 and 4 denuded of scales and more or less darkened.

α. Smaller, paler and narrower banded below.

*varuna lazulina, M.* (28-32). The Indigo Flash. Ceylon, S. India, NR.

β. Similar. Very pale below.

*varuna grisea, M.* (28-32). Kangra—Kumaon, R.

γ. WSF always larger. Very variable above and below, often very broad banded.

*varuna orseis, Hew.* (29-35). Sikkim—Burma. Andamans. NR. (= *gabenia, Fr.*).

δ. unh tornus broadly white powdered.

*varuna rogersi, Swin.* (32). Nicobars. R.

11a (10). Unf band single, only white edged outwardly. ♂ above dark slatey blue, shot more or less brilliant deep blue. ♀ as No. 9, rather darker and more purple. ♂ brand as No. 9, darker; tuft dark brown.

11 (12). Below pale brown to slatey brown, sometimes with a purple wash; ♀ sometimes ochreous brown. ♂ above shot on lower part of disc F and most of H. Considerable seasonal variation.

*schistacea, M.* (30-33). The Slate Flash. Ceylon. India—Burma. Andamans. C.

12 (11). Below very pale greenish grey. ♂ above only shot blue on H.

*scintilla, DeN.* (30-32). The Scarce Slate Flash. Sikkim—Burma. R.

13a (9c). ♂ above some shade of red. ♀ dull blue, brown coppery or red.

13b (15a). Below some shade of ochreous. ♀ dull blue or brown.

13 (14). ♂ above coppery red. ♀ dull blue or purple blue shading to fuscous. ♂ brand pale grey, oval: tuft brown.

α. ♂ above dark copper red colour extensive, border not continuing along dorsum F; H red to termen, lobe ochreous. Below ochreous brown, markings dark brown, white edged outwardly; unf a spot in cell nearly always present in ♂, usually absent in ♀; unh a spot near base 7 nearly always present in ♂.

**pheritimus pelosiris, Hew.* (38-42). The Copper Flash. Sikkim—Burma. NR.

β. ♂ above darker, copper red area F confined to a patch in middle of disc and very restricted on H; ♀ dull shining blue; lobe black. Below darker, discal bands more irregular; unf spot in cell present in ♂, absent in ♀; unh ♂ no spot in 7.

*pheritimus pheritimus, Hew.* (36—40). Victoria Point. S. Mergui. NR.

**H. 90. Rapala.—The Flashes. (Plate 29).—(**

14 (13). ♂ above bright scarlet, may be very obscurely purple shot; border broad and continued along dorsum F; H base and dorsum broadly black; lobe ochreous. ♀ plain brown. Below coppery ochreous of a variable shade, markings narrow, tornal spot in 2 ochreous crowned. ♂ brand pale ochreous, brown or grey, small and oval; tuft brown.

α. ♂ above red colour extends into 4 F; veins more or less black. Below DSF pale brownish ochreous; WSF coppery ochreous.

*dieneces dieneces, Hew.* (30–36). The Scarlet Flash. Bengal. Assam—Burma. NR. (=*xenophon, Auct: damona, Swin.*).

β. ♂ above red colour not above v4 on F; vs F not black, on H all black and red colour of equal extent in 6 and 5. Below darker, copper brown.

*dieneces intermedia, Stg.* Andamans. NR.

15a (13b). Below slatey grey, no ochreous tinge. ♂ brand dull brown, not conspicuous. In ♂ dark border on F not continued along dorsum.

15 (16). ♂ above bright red; shot purple; border broad and vs F black, but not markedly so; WSF duskier and border broader. ♀ paler red. Lobe black with a few orange and metallic scales. Unh tornal spot in 2 not prominent nor orange crowned.

*melampus, Cr.* (33–38). The Indian Red Flash. Ceylon, S. India—Orissa, Murree—Kumaon NR. (=*sorya, Koll.*).

16 (15). ♂ above bright red; vs. 2, 3 and 4 on F prominently black; H all red except in 7 and veins not black (DSF may be dusky red with vs. on H black). ♀ coppery brown, with fuscous border as in ♂. Lobe red. Unh tornal spot in 2 prominent, orange crowned.

*farbas, F.* (35–41). The Common Red Flash. Sikkim—Burma. C.

17a (9b). Unh discal band straight to v2 or at least to v3, sometimes even convex to termen, further from termen at upper than at lower end. ♂ brand dark brown, inconspicuous, behind origin v7; tuft pale brown, often inconspicuous or absent in Nos. 16 and 17, always absent in No. 18. Tornal spots unh not prominent, spot in 2 always orange crowned.

17b (19). Above blue.

17 (18). ♂ above dark purple blue, shot brilliant deep blue, broad border on F. ♀ paler, steely blue above. Below rather pale ochreous brown, sometimes purple glossed, discal bands prominently dark brown, obscurely white edged outwardly.

*buxaria, DeN.* (38–42). The Shot Flash. Sikkim—Assam. R.

18 (17). ♂ above not shot blue. Very variable above and below. ♂ above dark steely blue to purple, border broad on F and often with an orange discal patch; ♀ paler. Below very pale brown to dark ochreous brown, with or without a purple or rosy gloss; discal band narrow ferruginous or dark brown, outwardly obscurely white edged.

α. Generally paler and smaller.

*nissa nissa, Kollar.* (34–38). The Common Flash. Kashmir—Sikkim. C. (=*maculata, Stg.*).

β. Generally larger and brighter.

*nissa rectivitta, M.* (38–40). Sikkim—Assam. C. (=*subpurpurea, Leech.; ranta, Swin.: tacola, Fr.*).

*v. rosacea, DeN.* Below rosy. R.

γ. Always with a large orange spot upf; steely blue above.

*nissa nissoides, Swin.* N. Burma—Shan States. C.

19 (17b). ♂ above dark brown, obscurely purple glossed with large central red areas F and H of variable extent and more extensive in the ♀; on H red area crossed by black veins; lobe red. Below rather pale brown, double faint bars end cells; discal band broad on F, narrow on H, slightly darker than ground, prominently white edged outwardly, on F slightly broken in.

α. ♂ upf red area very wide, much wider than basal and apical dark areas and not crossed by dark veins.

*micans extensa, Evans.* (32–34). The Red Himalayan Flash. Chitral. NR.

β. ♂ upf red area narrower than the basal and apical dark areas and often crossed by dark veins.

*micans selira, M.* Kashmir—Kumaon. C.

**H. 91. Sinthusa.—The Sparks. (Plate 29.)**

Below markings very much as in *Rapala*, bars end cells and discal band.

1 (2a). Below white, markings yellow centred and black edged; discal band catenulated, broken usually at v4 F and H; unh dark bar mid cell and another in 7 above it; tornal spots prominent, orange obscure, metallic scales in 1. ♂ above greyish white, base F suffused dark brown and border very broad. ♀ as ♂ but pale area much more extensive. Lobe ochreous. ♂ unf no tuft, but with an oval orange patch of modified scales along v1.

*virgo*, *El.* (32-36). The Pale Spark. Sikkim—Manipur. Bernardmyo. VR. (=*virgoides*, *Tyt.*).

♀ *v. confusa*, *Tyt.* The greyish white colour replaced by shining light blue. VR.

2a (1). Below not usually white and markings not yellow centred. ♂ unf with a tuft. Lobe above black centred with orange and metallic scales. ♂ above very deep blue, shot rich blue, border F broad; H rich shining purple blue; black portions of wing with a bronzy gloss. ♀ brown, often with a pale discal patch F and pale tornal area H.

2 (3). Below pale grey, no ferruginous tinge, markings broad, dark grey, white edged both sides; F discal band irregular, broken at v4; on H broken at 2, 4 and 6; cell bars nearly coalesce with the discal bands; H black spot mid cell and a larger one above it in 7. ♂ uph blue colour extends from v1 to v6 and through lower half of cell.

α. Below markings comparatively narrow, catenulated, marginal markings obscure. ♀ dark brown, may be slightly paler on disc F and before margin H and there may be some obscure bluish white patches in 1-4 H.

*chandrana chandrana*, *M.* (28-32). The Broad Spark. Kangra—Kumaon. R.

β. Below markings broader; in WSF marginal markings prominent: DSF sometimes nearly white below. Typical ♀ as in α.

**chandrana grotei*, *M.* Sikkim—Burma. NR. (=*pratti*, *Leech*).

♀ *v. albidus*, *Evans.* Upf with a sharply defined or diffused yellowish white discal patch; uph from as in typical form to almost entirely bluish white.

♀ *v. rubidus*, *Evans.* Upf with a more or less distinct red discal patch.

3 (2). Below bars end cells and discal band very narrow, nearly linear, ferruginous, outwardly white edged; on F discal band continuous, unbroken: on H broken at v2 and 4. ♀ as in No. 2 α above.

α. ♂ uph blue colour confined to margin in 1, 2 and 3, extending to end cell in 3 and 4. Below pale grey with a ferruginous tinge; in ♀ apex F pale ferruginous.

*nasaka pallidior*, *Fruh.* (28-32). The Narrow Spark. Kangra—Kumaon. R.

β. ♂ uph blue in 1-4 from margin to mid cell and along margin to 6. Below darker, markings more prominent. Unf termen ferruginous.

*nasaka amba*, *Kirby.* Sikkim—Burma. R. (=*obscurata*, *Fr*).

**H. 92. Bindahara.—The Planes. (Plate 29.)**

♂ above velvet black; above tail H as well as tail and lobe pale ochreous. ♀ dark brown; tornal area, lobe and tail white, veins black, prominent marginal spot in 2. Below ♂ ochreous; F outer half and H apex dark brown; ♀ white; F broad dark brown band through mid cell and a broad discal band, broken out at v4; H 4 basal spots, double spot end cell and a much broken discal band consisting of 2 parallel lines, the interval between in the ♂ and sometimes in the ♀ being filled in dark brown in 6 and 7; black tornal spots in 1 and 2 crowned metallic scales and by the submarginal dark line.

α. ♂ uph margin brilliant purple blue in 3-5, followed by green in 2. Below ♂ pale ochreous; dark bands very prominent in ♀.

**phocides moorei*, *Fruh.* (38-42). The Plane. Ceylon, S. India. R. (=*sugriva*, *Auct*).

β. ♂ uph uniform dark brown. Below darker ochreous.

*phocides phocides*, *F.* (36-40). Sikkim—Burma. Andamans. R. (=*ines*, *Swin*).

γ. As last, but below paler and all markings tend to complete obsolescence. ♀ below markings pale ochreous.

*phocides areca*, *Fd.* (36-40). Nicobars. R. (=*kamorta*, *Fd*).

**H. 93. Araotes.—The Witch. (Plate 29.)**

♂ upf black, basal half shot brilliant blue ; uph brilliant deep blue, except for dark brown costa, ♀ dark brown, disc F obscurely reddish ; H tornal area bluish white, veins black. Below white ; F basal ⅓ and apical ⅓ ochreous, black edged ; H base and disc with irregular black markings, apex ochreous ; tornal marking prominent, crowned metallic scales.

**lapithis*, *M.* (28-32). The Witch. Sikkim—Burma. R.

**H. 94. Sithon.—The Plush. (Plate 29.)**

♂ above brilliant deep shining blue, border 2mm. to 3 at apex ; H terminal ⅓ blue, rest black. ♀ dark brown, reddish on F ; tornal area H bluish white and veins black. Below white ; outer ⅓ F and outer ⅓ H dark chocolate brown in ♂, bright ochreous in ♀ ; F dark area divided by a white discal line, beyond which the apex is paler ; H apex and upper part termen paler, black discal line in 1a and 1 ; tornal area narrowly black, outwardly white edged and crowned metallic green scales in 1 and 2, a second metallic green line in 1 and a terminal line in 1a.

**nedymond ismarus*, *Fruh.* 30-34. The Plush. Dawnas—S. Burma. NR. (=*chitra*, *Hors*).

**H. 95. Liphyra.—The Moth Butterfly. (Plate 27.)**

Above brown to rich yellow with an irregular, broad black border ; upf a large black spot at end cell, extending into bases 2 and 3 ; uph a black spot end cell and large spots at bases of 2 and 3. Below dull yellow, marked rather as above.

**brassolis*, *Wd.* (86-92). The Moth Butterfly, Sikkim—Burma. VR.

## *I. HESPERIIDÆ*

**1. Hesperiidæ.** Key to subfamilies and genera.

1a (33a). Body shorter than dorsum H. Larva on dicotyledons. Egg dome-shaped, ribbed.

1b (7a). Palpi 3rd joint peculiar, long, thin, naked, blunt, porrected in front of the face and looking rather like an awl; emanating from a stout 2nd joint, which is erect and appressed to the face. Antennal club long, gradual, curved at the thickest part and tip pointed. F v2 from near base; v4 nearer v5, which is nearer 6. H v2 never after v7; v5 well marked and usually nearer 6. H produced or angled at v1. H tibiæ with 2 pairs of spurs. Wings erect in repose.

Africa. India and China to Australia.

1c (5a). H v5 tubular, much nearer v6; cell = ½ wing.

1d (4). H v2 about opposite v7.

1 (2a). F v1 distorted at base. H tibiæ fringed. ♂ often with a brand upf and v2 bent down towards v1.

*Hasora*, M. India and China to Australia. (= *Parata*, M.).

2a (1). F v1 sinuous but not distorted.

2 (3). Antennal club very long and gradual = ½ shaft. ♂ often with a brand upf and v2 displaced; also the hind tibiæ swollen and tufted.

*Ismene*, Swainson. India and China to New Guinea. (= *Pola*, *Torthrix*, *Gecana*, *Burara*, *Sartora*, *Zehala*, Swin).

3 (2). Antennal club less than ½ shaft. H tibiæ not swollen or tufted; fringed,

*Bibasis*, M. India to Celebes.

4 (1d). H v2 well before v7. H tibiæ fringed. ♂ no brand.

*Allora*, Waterhouse and Lyell. Moluccas to Australia. (*doleschalli*, Fd.).

5a (1c). H v5 not tubular, midway between vs 4 and 6; v2 well before v7.

5(6). H cell = ½ wing. ♂ hind tibiæ with a long tuft. F cell normal; v4 midway between vs 3 and 5.

*Rhopalocampta*, Wallengren. Africa, India and China to New Guinea. (= *Choaspes*, M).

6 (5). H cell much less than ½ wing. H tibiæ fringed. F cell very long and narrow; v4 nearer v5.

*Badamia*, M. India and China to Australia.

7a (1b). Palpi 3rd joint short, stout and conical. F v2 from near base: v5 nearer v6. H v5 well marked and nearer v6; v2 before or opposite v7. Antennal club shorter; curved or angled at or before middle of club, or at thickest part. Wings flat in repose. ♂ never with a brand or tuft of hairs on the wings.

**Celænorrhinæ.** America. Africa. India and China to Australia.

7b (14a). H. v5 tubular; tornus rounded. Palpi porrect; 3rd joint short; 2nd joint yellow below. Antennæ = ½ costa: bent in the middle of the club; pointed.

**Capila Group.**

7c (10a). Hind tibiæ only with terminal spurs; fringed. Clasp of genitalia single, elongate and pointed.

7 (8a). Palpi 3rd joint long. Small size—32 mm.

*Exometoeca*, Meyrick. West Australia (Albany). (*nycteris*, Mey.).

8a (7). Palpi 3rd joint very short. Large—over 40 mm.

8 (9). F v4 mid 3–5; internal cell veinlet forks to bases vs 4 and 5. ♂ no costal fold on F. Eyes red.

*Phœnicops*, Watson. Australia. (*beata* and *denitza*, Hew.).

9 (8). F v4 twice as near v5 as v3; internal cell veinlet forks to just beyond base v3 and to base v5. ♂ with costal fold F. Eyes brown. (*critomedia* is aberrant).

**I. Hesperiidæ—Genera—Capila Group—(*contd.*)**

*Casyapa*, Kirby. Moluccas to Australia : (6 species). (= *Chætocneme*, Fd.).
10a (7c). Hind tibiæ with 2 pairs of spurs ; tufted in ♂. Clasp of genitalia large, trifid.
10 (11a). Palpi 3rd joint very short and inconspicuous. Eyes red. ♂ usually with a costal fold.
*Orthopætus*, Watson. N. India and China to Borneo. (= *Pteroxys*, Wat.).
11a (10). Palpi 3rd joint short, but conspicuous. Eyes golden brown or black. ♂ no costal fold.
11b (13). Wings broad ; F termen equal to or longer than dorsum.
11 (12). ♂ with no secondary sexual characters on wings.
*Capila*, M. N. India and China to Siam and Hainan. (= *Pisola*, M.)
12 (11). ♂ dorsum H turned over and with a long tuft of hairs at the tornus.
*Crossiura*, DeN. N. India, China and Hainan.
13 (11b). Wings narrow ; F dorsum longer than termen. H termen very rounded.
*Calliana*, M. India, China, Malay States and Borneo.
14a (7b). H v5 not tubular.
14 (15a). Hind tibiæ with single pair of spurs ; plain. A jugum at the base of the wings as in the Heterocera. Wings very long and narrow. ♂ unh a brown brand along vl. A very aberrant genus.

**Euschemon Group.**

*Euschemon*, Db. Australia. (*rafflesia*, McLeay.) (= *Froenati*, Mab.)
15a (14). Hind tibiæ with two pairs of spurs.

**Celaenorrhinus Group.**

15b (20a). F length cell = ⅔ costa and as long as dorsum. Antennæ pointed. Apex F not truncate.
15c (17a). Palpi 3rd joint inconspicuous, in continuation of 2nd joint which is erect or sub-erect.
15 (16). F v4 much nearer 5 than 3 ; internal veinlets fork to base v5 and mid 3–4. ♂ hind tibiæ with a tuft of yellow hairs.
*Charmion*, DeN. Burma to Celebes.
16 (15). F v4 about mid 5 and 3 ; internal veinlets to bases 4 and 5. ♂ hind tibiæ with a tuft of brown hairs.
*Celaenorrhinus*, Hub. America, Africa, India and China to Celebes. (= *Gehlota*, Doh. and *Hantana*, M.).
17a (15c). Palpi porrect.
17 (18a). F v4 further from 3 than from 5 ; lower cell veinlet to mid 3–4 ; v5 very slightly bent down at origin parallel to v4.
*Hewitsonia*, Evans. Type *aenesius*, Hew. Papuan area. (4 species.)
18a (17). F v4 mid 3–5 ; lower cell veinlet to base v4 ; v5 normal. Hind tibiæ fringed.
18 (19). ♂ with a costal fold. Wings rounded ; H tornus toothed at vl.
*Achalarus*, Scudder, N. America, N. India and China. (= *Lobocla*, M.).
19 (18). ♂ no costal fold. Apex F and tornus H produced.
*Satarupa*, M. N. India and China to Java and Borneo.
20a (15b). F cell markedly shorter than dorsum or ⅔ costa. Palpi porrect.
20b (27a). Apex F not truncate ; termen even throughout or slightly excavate in 1.
23c (23a). H tibiæ fringed.
20d (22). Antennæ bent in the middle of the club.
20 (21). F mv very arched between origins vs 2 and 3. Palpi 2nd joint smooth, brown tipped and rest white.
*Tagiades*, Hub. Africa. India, and China to Australia.
21 (20). F mv straight Palpi yellow below.
*Abraximorpha*, Elwes. N. India, N. Burma and China.
22 (20d). Antennæ aberrant, bent near end, beyond thickest part of club ; apiculus very slender and short. Wings produced.
*Odina*, Mab. N. India to Celebes. (= *Entheus*, *Ob.*).
23a (20c). Hind tibiæ with a tuft in the ♂.
23 (24a). Mid tibiæ with a tuft in the ♂, an unique feature.

**I. Hesperiidæ—Genera—Celaenorrhinus Group—(*contd.*)**

*Mooreana*, Evans. Type *trichoneura*. N. India to New Guinea.
24a (23). Mid tibiæ plain.
24b (26). H dorsum longer than or = costa.
24 (25). H costa evenly rounded at the apex.
*Daimio*, Murray. India and China to Celebes.
25 (24). H costa distinctly angled at the apex (end v8).
*Coladenia*, M. Africa, India and China to Philippines.
26 (24b). H costa longer than the dorsum. Antennæ chequered, club and crook very short.
*Sarangesa*, M. Africa, India to Malay Peninsular.
27a. (20b). Apex F distinctly truncate.
27b (29. 30a). Apex F truncate at end v3. H more or less angled at end of v4.
27 (28). Hind tibiæ fringed.
*Darpa*, M. N. E. India to Philippines.
28 (27). Hind tibiæ tufted in ♂.
*Tapena*, M. India to Malay Peninsular.
29 (27b. 30a). Apex F truncate at end v5. ♂ with a costal fold F. Hind tibiæ fringed. Palpi 3rd joint unusually long. H angled at end v4.
*Netrocoryne*, Fd. Australia. (*repanda*, *Fd.*).
30a (27b. 29). Apex F truncate at end v4. H more or less angled at end vs 4 and 7.
30. (31a). Antennæ tip pointed. Hind tibiæ with tuft in ♂.
*Ctenoptilum*, DeN. N. E. India, China and Burma.
31a (30). Antennæ tip blunt.
31 (32). ♂ with a short dense tuft of white hairs on the fore coxæ. Hind tibiæ fringed.
*Odontoptilum*, DeN. India and China to Celebes.
32 (31). ♂ with a long pencil of radiating black hairs attached to the fore coxæ. Hind tibiæ plain.
*Caprona*, Wallengren. Africa, India to Celebes. ( = *Abaratha*, M. and *Gerosis*, Mab.).
33a (1a). Body as long or longer than dorsum H.
33b (47a). F v5 rather nearer v6 than v4.
33c (37a). H end cell straight; v2 well before v7; v5 well marked rather nearer v4. F v2 mid base and v11; end cell straight. Antennæ = ¼ costa; club short, stout and blunt. Palpi long, slender porrect, usually hairy; 3rd joint stout, short but prominent, porrect. ♂ may have a costal fold upf. a tuft unf or the hind tibiæ tufted. Wings rounded. Wings flat, erect or semi-erect in repose; low flying. Larva on dicotyledons. Eggs strongly ribbed.

**Hesperiinæ.**

33 (34a). Antennæ club straight. Cilia plain.
*Gomalia*, M. Africa, India.
34a (33). Antennæ club more or less bent.
34b (36). F v4 mid vs 3 and 5. Cilia prominently chequered.
34 (35). H termen even. ♂ may have costal fold upf and a tuft on the hind tibiæ.
*Hesperia*, Fab. N. America, Africa, Europe to India and China.(= *Pyrgus*, Hub.; *Spialia*, Swin.; *Powellia*, Ob.; *Urbanus*, Hub.; *Erynnis*, Schrank; *Scelothrixa* and *Battus*, Ramb.; *Syricthus*, Bdv.; *Muschampia*, Ob.).
35 (34). H termen crenulate. ♂ with costal fold upf and may have tuft unf.
*Carcharodus*, Hub. N. Africa, Europe to N. W. India. ( = *Spilothyrus*, Dupon).
36 (34b). F v4 much nearer v3 than v5. ♂ may have costal fold upf.
*Nisoniades*, Hub. N. America, Europe to Chitral and China. ( = *Thanaos*, Bdv. and *Thymele*, F.).
37a (33c). H upper apex of cell produced, nearer termen than lower edge internal cell veinlet has a fork to the origin of v4; vs 2 and 7 opposite F v2 mid base and v11 or nearer v11. Antennæ club stout, usually hooked and may be pointed. Palpi inconspicuous; 2nd joint rather flattened, semi-erect or porrect; 3rd joint in continuation of 2nd joint, short, stout, conical, prominent. ♂ may have a brand upf. Body stout. Wings erect in repose.

**I. Hesperiidæ—Genera—(*contd.*)**

**Trapezitinæ.** Confined to Australian Region.

37b (41a). ♂ no brand.
37 (38a). H tibiæ with terminal spurs only.
*Mesodina*, Meyrick. Australia. (3 species).
38a (37). H tibiæ with 2 pairs of spurs.
38a (39a). Antennæ sharp pointed.
*Trapezites*, Hub. Australia to New Guinea. (12 species) (= *Putlasingha*, Wat.).
39a (38). Antennæ blunt.
39 (40). F termen rather shorter than dorsum.
*Anisynta*, Lower. Australia. (6 species).
40 (39). F termen much shorter than dorsum.
*Oreisplanus*, Waterhouse and Lyell. Australia. (2 species).
41a (37b). ♂ with a brand upf. H tibiæ with two pairs of spurs.
41b (45a). Antennæ tip pointed.
41 (42). ♂ with oval brand upf; v1 distorted at ⅓ from base.
*Signeta*, Waterhouse and Lyell. Australia. (2 species).
42a (41). ♂ with linear brand.
42 (43. 44). Uph orange or yellow central band.
*Hesperilla*, Hew. Australia. (9 species).
43 (42. 44). Uph unmarked.
*Toxidia*, Mabille. Australia to New Guinea. (11 species). (= *Telesto*, Bdv. and *Oxytoxia*, Mab.).
44 (42. 43). Uph with a pair of hyaline discal spots.
*Neohesperilla*, Waterhouse and Lyell. Australia. (4 species).
45a (41b). Antennæ tip blunt.
45 (46). Antennal club hooked or strongly bent before middle.
*Motasingha*, Watson. Australia. (4 species).
46 (45). Antennæ club evenly and only slightly bent in middle. Tegumen slender, pointed, quite different to rest.
*Dispar*, Waterhouse and Lyell. Australia. (*compacta*, But.).
47a (33b). F v5 always nearer to v4 than to v6; the dcv vs 6 to 5 always distorted just before v5. Hind tibiæ may be fringed, but never tufted in ♂. ♂ never with a costal fold upf. Wings erect in repose, or lower wings may be depressed and given a rotating motion in a horizontal plane. Larva on monocotyledons (except *Cupitha*).

**Pamphilinæ.**

47b (81a). Antennæ bent at the middle or thickest part of the club.
**Section I.**
47c (75a). Palpi 3rd joint protruding. Eyes never red. H v2 before or opposite v7 (except *Ge.*).
47d (61a). Palpi entirely porrect, 3rd joint prominent, stout. F v5 straight. Antennæ short = costa or less; apiculus very short or absent.
47e (59a). H v2 well before v7 (except where latter is distorted in ♂♂ of *Aeromachus* and *Ampittia*).
47f (55a). F v2 before v11.
47g (50a). H v2 from before middle v8; v2 from mid base and end cell or nearer base. Antennæ club stout and blunt. Palpi 2nd joint slender and clothed with long hairs. Abdomen very long (except *C. pulchra*). H much produced below costa. F tibiæ without epiphysis.

**Heteropterus Group.**

47 (48a). F v3 opposite v9. H tibiæ with single pair of spurs (2 in *C. abax*). Hyaline white or yellow markings.
*Carterocephalus*, Led. Europe to China, N. E. India and N. Burma. (= *Aubertia*, Ob.: and *Pamphila*, Auct.: *Steropes*, Bdv.).
48a (47). F v3 opposite v10. No hyaline markings.
48 (49). Hind tibiæ with single pair of spurs. Unh no spots.
*Leptalina*. Mab. Japan to Central China. (*unicolor*, Br. and Gr.).
49 (48). Hind tibiæ with 2 pairs of spurs. Unh with prominent spots. Cilia F chequered.
*Heteropterus*, Dumeril. Europe to Japan. (*morpheus*, Pallas).

**I. Hesperiidæ—Genera—Heteropterus Group.** (*contd.*)

50a (47g). H v7 from middle or before middle of v8 and v2 always nearer end cell than base. H tibiæ with 2 pairs spurs and fore tibiæ with epiphysis.

**Isoteinon Group.**

50b (52a). Abdomen longer than dorsum. Antennæ with short, pointed apiculus. F with white spots.

50 (51). F cilia chequered. Tegumen divided. Unh yellow with numerous large, white spots. F with prominent hyaline spots.

*Isoteinon*, Fd. Japan to Tonkin. (*lamprospilus*, Fd.).

51 (50). F cilia plain. Tegumen undivided. Unh grey with few whitish spots. F with obscure semi-hyaline spots.

*Elwesia*, Evans. Chitral. Type *lesliei*, Evans.

52a (50b). Abdomen = dorsum. F no discal hyaline spots.

52 (53a). Antennæ club blunt, stout, arcuate. F broad; Unh narrow-yellow band.

*Barca*, DeN. W. Thibet. (*bicolor*, Ob.). (= *Dejeania*, Ob.).

53a (52). Antennæ club gradual, short, fine pointed apiculus.

53 (54). F vs 11 and 12 separate; v2 from near base. Unmarked.

*Apostictopterus*, Leech. (= *Tacupa*, Swin.). W. China to N. E. India.

54 (53). F vs 11 and 12 approximate; v2 from just before v11. Unmarked except for small hyaline apical spots F and unh more or less obscure ferruginous bands.

*Astictopterus*, Fd. China and N. E. India to Philippines.

55a (47f). F v2 opposite v11. No hyaline spots.

**Ampittia Group.**

55b (57a). F v5 quite straight. ♂ no brand. Below with prominent scaling. Antennæ club gradual with short, pointed apiculus.

55 (56). F v6 from well below apex cell; costa highly arched. Upf no prominent markings.

*Ochus*, DeN. N.E. India to Tonkin.

56 (55). F v6 from end cell; costa straight. Upf usually with prominent discal and apical yellow spots.

*Baracus*, M. India, N. Burma, Philippines.

57a (55b). F v5 slightly bent down at origin. ♂ may have a brand upf from v1 to v2 and on H vs 6 and 7 hairpinwise.

57 (58). Above with prominent yellow markings and unh with yellow scaling. Antennæ apiculus absent or very short and gradual.

*Ampittia*, M. India and China to Sumatra.

58 (57). Above unmarked or with small white spots; unh olive grey or black. Antennæ apiculus short and gradual or very fine and abrupt.

*Aeromachus*, DeN. India, China and Japan to Philippines. (= *Muchacus*, Swin.).

59a (47e). H v2 about opposite v7. F hyaline white spots.

**Arnetta Group.**

59 (60). F v2 nearer end cell than base.

*Pedestes*, Watson. N. E. India.

60 (59). F v2 nearer base than end cell. ♂ in two species with a tuft of hairs unf and bases vs 2 and 3 H swollen.

*Arnetta*, Watson, India, Burma, Sumatra.

61a ((47d). Palpi never conspicuously porrect, 2nd joint semi-erect or erect. Antennæ apiculus well defined.

61b (71a). F v5 not bent down at origin, so as to be very much nearer v4 than to v6.

61c (66a). Palpi 3rd joint long, slender, erect (except in some *Koruthaialos*).

**Suastus Group.**

61d (64a). F v11 not running close to v12. Antennæ apiculus short.

61e (63). F v2 from mid base and v11.

**I. Hesperiidæ—Genera—Suastus Group**—(*contd.*)

61 (62). H v2 from well before v7. F v4 nearer to v3 than v5. ♂ may have alar sex marks.
*Iambrix*, Watson. India and China to Java and Borneo. (= *Mimambrix*, Riley and *Idmon*, DeN.).
62 (61). H v2 opposite v7. F v3 mid vs 4 and 5. F usually with hyaline spots.
*Suastus*, M. India to Sumatra and Borneo.
63 (61e). F v2 from just before v11. ♂ upf a seam from mid v1 to base v4. Hyaline spots F and H.
*Inessa*, DeN. Lombok.
64a (61d). F v11 approximate to v12.
64b (66). H no tuft of hairs base costa.
64 (65). Antennæ long, over ½ costa = cell; apiculus long, fine and hooked. Hyaline spots F and H.
*Scobura*, Elwes. N. E. India to Sumatra and Borneo. China.
65 (64). Antennæ short = ½ costa, not so long as cell; apiculus obtuse, short. May be hyaline spots F.
*Suada*, DeN. N. E. India to Philippines.
66 (64b). ♂ H tuft of long thin hairs base costa and unf short obilique scales overlying a groove under the basal part of the scv. No hyaline spots; usually a red band upf.
*Koruthaialos*, Watson. N. E. India to Phillippines. (= *Arunena*, Swin and *Corythæolos*, Mab.)
67a (61c). Palpi 3rd joint very short, blunt, conical. No hyalime spots except in ♀ of *Ge*.

**Sancus Group.**

67 (68a). F v11 touches v12. Antennæ = ¼ costa. ♂ unf with a brown brand under origin of v2. Costa F more arched than usual at base. Above unmarked.
*Sancus*, DeN. India to Celebes.
68a (67). F v11 close to v12, but not touching it.
68 (69a). Antennæ = ½ costa; club stout. F v3 just before end cell. Unmarked.
*Watsoniella*. Bery. N. E. India to Burma. (= *Watsonia*, El. and *Stimula*, DeN.
69a (68). Antennæ = ¾ costa. F v3 well before end cell. H v2 just after v7.
69 (70). Antennæ with a very long fine hooked apiculus. ♂ upf with a circular patch of recumbent hairs under origin of v2.
*Ge*, DeN. S. Burma to Java and Borneo.
70 (69). Antennæ with an obtuse apiculus. F broad yellow central band.
*Ilma*, Swin. (*irvina*, Plotz). Celebes.
71a (61b). F v5 bent down at origin and conspicuously nearer v4 than 6 (except *K. fulgur*). Palpi 3rd joint short, blunt and conical.

**Udaspes Group.**

71b (73a). F v3 not close to v4, opposite v10 or 11. No hyaline spots. Antennæ club slender and gradual.
71 (72). Palpi 2nd joint erect. Unmarked or a red band upf.
*Kerana*, Dist. N. E. India to Philippines. (= *Tamela*, Swin.).
72 (71). Palpi 2nd joint porrect.
*Ancistroides*, But. Borneo to Celebes. (*othonias*, Hew and *longicornis*, But.).
73a (71b). F v3 very close to v4 and opposite v9. Large hyaline spots. Antennæ club stout.
73 (74). Antennæ = ½ costa. Palpi porrect. Hyaline spots F and H.
*Udaspes*, M. India and China to Java.
74 (73). Antennæ more than ½ costa. Palpi erect. Hyaline spots only on F.
*Notocrypta*, DeN. India and China to Australia. (= *Pleisoneura*, Fd.).
75a (47c). Palpi not protruding, 3rd joint shows as a nipple and the scales round it are flattened and depressed; 2nd joint very stout, erect and appressed to face. Eyes red. Antennæ club stout, apiculus obtuse, pointed,

**I. Hesperiidæ—Genera—(*contd.*)**

**Erionota Group.**

75b (78a). F apex cell rounded ; v5 straight.

75 (76a). H v2 well before v7. F large hyaline yellow spots. ♂ upf glandular streaks along mid v1 and basal ¼ of v2 : unf thick patch of recumbent hairs along v1 ; uph basal ½ of vs 2 and 3 swollen, v2 being shifted to near base.

*Gangara*, M. India to Philippines.

76a (75). H v7 before v2 unless distorted in ♂ (No. 77).

76 (77). H lower end cell only slightly bent up. F large hyaline spots.

*Erionota*, Mab. India to New Guinea, China.

77 (76). H lower end cell much bent up in ♀. ♂ unmarked above ; ♀ large yellow hyaline spots F. ♂ upf large patch dense black scales in centre of disc ; unf tuft and H veins swollen as in No. 75.

*Paduka*, Dist. India to Celebes.

78a (75b). F upper apex of cell acutely produced.

78 (79a). F. v5 straight. H v2 opposite v7. Large hyaline yellow spots F and H. ♂ upf a brand along v1.

*Pudicitia*, DeN. N. E. India.

79a (78). F v5 bent down at origin. H. v7 well before v2. Above unmarked.

79 (80). ♂ uph large tuft black hairs attached below v8. Cells very short. Antennæ long and slender.

*Matapoides*, Druce, Borneo. (*smaragdinus*, Druce).

80 (79). ♂ upf brand from mid v1 to below base v3. Antennæ = ½ costa, club stout.

*Matapa*, M. India and China to Moluccas.

81a (47b). Antennæ bent beyond thickest part of club. (*Taractrocera* and *Thymelicus* are aberrant).

81b (97a). Palpi 2nd joint stout, never conspicuously flattened at end, erect or nearly so. Antennæ usually very long and apiculus always well developed, fine, more or less hooked. Usually hyaline spots F.

**Pamphilinæ, Section II.**

81c (96). Palpi 3rd joint erect.

81d (85a). F v3 opposite v9.

**Hyarotis Group.**

81e (84). F v4 much nearer v3 than 5. Antennæ over ½ costa.

81f (83). ♂ no alar sex marks.

81 (82). H v7 well before v2. Palpi 3rd joint long, thin and erect.

*Oerane*, DeN. S. Burma to Philippines.

82 (81). H v7 about opposite v2. Palpi 3rd joint short and stout as in rest of group.

*Hyarotis*, M. (= *Quedara*, Swin.). India to Phillippines.

83 (81f). ♂ unf long tuft of hairs on dorsum, partly turned up and partly turned down.

*Itys*, DeN. N. E. India to Java.

84 (81e). F v4 mid vs 3 and 5. ♂ upf glandular streak along mid v1 and base v2.

*Zographetus*, DeN. India to Philippines.

85a (81d). F v3 opposite v10 or 11. Antennæ long, over ½ costa.

85b (88a). F v4 not nearer v5 than to v3. (Some species of *Plastingia*, *Pirdana* and *Lotongus* are aberrant).

**Plastingia Group.**

85 (86. 87). ♂ upf dark oval brand above basal ¼ of v1 ; unf a tuft mid dorsum ; uph a tuft of recumbent hairs in 7 from near origin of v8 and tornal cilia elongated.

*Isma*, Dist. (= *Lophoides*, Watson). Burma to Java and Borneo.

86 (85. 87). ♂ upf may be a stigma mid v1 to base v4 ; an oval brand basal ¼ of v1 ; tornal cilia H elongated. F v5 slightly bent down at origin (straight in *Isma*).

*Sepa*, DeN. S. Burma to Philippines.

87 (85. 86). ♂ no alar sex marks. F v5 may be straight or acutely bent down at origin.

**I. Hesperiidæ—Genera—Plastingia Group—(*contd.*)**

*Plastingia*, But. India to Celebes. Aru.
88a (85b). F v4 much nearer v5 than 3.
88b (91a). F apex cell not produced and cell not = dorsum.

**Lotongus Group.**

88c (90). Abdomen below brown.
88 (89). Eyes brown. ♂ no alar sex marks.
*Lotongus*, Dist. H. E. India and China to Philippines.
89 (88). Eyes red. ♂ either a seam upf or a brush uph. Tornal cilia orange.
*Zela*, DeN. (= *Zampa*, DeN). N. E. India to Philippines.
90 (88c). Abdomen below white, also cilia H. ♂ unf in one species a large area of black modified scales.
*Acerbas*, DeN. S. Burma to New Guinea.
91a (88b). F apex cell acutely produced and cell = dorsum.

**Unkana Group.**

91b (95). Above prominent hyaline spots. Tornal cilia H not orange.
91 (92a). F v2 mid base and v3.
*Zea*, Dist. S. Burma to Borneo.
92a (91). F v2 much nearer base than v3.
92 (93a). ♂ upf a thin seam from below v2 to base v3; unf a tuft mid dorsum. Cilia H white.
*Eetion*, DeN. S. Burma to Borneo.
93a (92). ♂ no alar sex marks.
93 (94). F v5 straight.
*Unkana*, Dist. Burma to Philippines.
94 (95). F v5 bent down at origin.
*Hidari*, Dist. Burma to Borneo and Java.
95 (91b). Above no hyaline spots. Tornal cilia H orange. Below usually green.
*Pirdana*, Dist. (= *Tanyptera*, Mab. and ? *Biaka*, Joicey and Talbot). N. E. India to New Guinea.
96 (81c). Palpi 3rd joint very long, stout, porrect. ♂ upf obscure glandular streak along middle v2 and uph dorsum clothed long dense hairs.

**Creteus Group.**

*Creteus*, DeN. N. E. India. Borneo.
97a (81b). Palpi 2nd joint more or less flattened at end. Antennæ usually horts. F v5 bent down at origin. Eggs generally smooth.

**Pamphilinæ. Section III.**

97b (102a). Antennæ with gradual, well formed, slender apiculus, usually hooked. Palpi 2nd joint semi-erect; 3rd joint short, porrect.

**Halpe Group.**

97 (98a). F v2 form near base. Antennæ long = ⅔ costa. F v4 nearer 5 and apex of cell produced. Upf from origin v2 basal part of v2 and mv swollen.
*Gehenna*, Watson. S. Burma to Celebes.
98a (97). F v2 from mid base and end cell, opposite v11 or just before it. Antennæ about ½ costa.
98b (101). H v7 before or opposite v2. F v5 bent down.
98 (99a). Antennæ apiculus very long = length club. ♂ in one species with a brand in 1 upf and vs 1 and 2 distorted; H vs 6 and 7 hairpinwise.
*Pithauria*, M. N. E. India and China to Borneo and Java. (= *Pithariopsis*, W. M.)
99a (98). Antennæ apiculus never as long as the club.
99 (100). ♂ upf usually a brand from mid v1 to v3 and v1 may be distorted; H vs 6 and 7 hairpinwise, when brand is present upf.
*Halpe*, M. India and China to Celebes. (= *Thoressa*, Swin.).
100 (99). ♂ uph long tuft recumbent black hairs in 7 from origin v8; some glandular scaling about lower edge of cell.
*Onryza*, Wat. Burma and Siam.

**I. Hesperiidæ—Genera—Halpe Group—(*contd.*)**

101 (98b). H v2 well before v7; cell very short and tornus rounded. F v5 straight. ♂ unf a tuft mid dorsum and uph an oval brand in cell.
*Sebastonyma*, Wat. N. E. India and Burma.
102a (97b). Antennæ apiculus short, abrupt, very fine and usually upturned at end. (*Taractrocera*, *Thymelicus*, *Eogenes*, and *Arrhenes* are aberrant.)
102b (112a). F cell veinlet has no fork to the origin of v3 or 4. Above dark brown and yellow.

**Pamphila Group.**

102c (104a). Palpi 3rd joint porrect. F v2 mid base and v11. H v2 before v7.
102 (103). Apex cell produced. Antennæ = ½ costa; apiculus short and stout.
*Actinor*, Wat. N. W. Himalayas.
103 (102). Apex cell rounded. ♂ with a circular pouch in cell uph, whence wax oozes; mv distorted; F dorsum bowed, vl distorted and unf a yellow tuft near base dorsum over a polished area. Antennæ with fine, short apiculus. Larva on dicotyledons. Generally aberrant.
*Cupitha*, M. India to Philippines.
104a (102c). Palpi 3rd joint erect. F v2 just before v11.
104b (111a). H v7 from much nearer end cell than base and about opposite or after v2.
104c (108). Palpi 3rd joint long and thin.
104 (105a). H no tuft of long thin hairs at base costa and unf no scales from basal part of v12 overlying scv. Antennæ normal. ♂ no brand.
*Nicévillea*, Evans, type *gola*. India to Australia.
105a (104). H with a long tuft of thin hairs at base costa and unf obliquely placed scales from basal part of v12 overlying scv.
105 (106a). Antennæ club aberrant consisting of a hollowed disc; antennæ = ½ costa. ♂ may have brand upf.
*Taractrocera*, But. India and China to Australia. (= *Bibla*, Mab).
106a (105). Antennæ club normal; length rather over ½ costa.
106 (107). Antennæ apiculus commences well beyond thickest part of club and is very fine throughout. ♂ may have a brand upf.
*Padraona*, M. India and China to Australia. (= *Ocybadistes*, Heron).
107 (106). Antennæ apiculus commences near thickest part of club and tapers to a point, always obtuse; club distinctly flattened. Wings much squarer. ♂ usually with a brand upf.
*Arrhenes*, Mab. Moluccas to Australia. (5 or more species).
108 (104c). Palpi 3rd joint short, stout and conical. ♂ may have a brand upf or a tuft uph.
*Telicota*, M. India and China to Australia. (= *Corone*, Mab. and *Cephrenes*, Waterhouse and Lyell).
109 a (104b). H. v7 from mid base and end cell, before v2. ♂ usually with a brand upf from mid vl to base v4.
109 (110. 111). Antennæ apiculus = club.
*Augiades*, Hub. Europe to China. N. India and N. Burma.
110 (109. 111). Antennæ apiculus = ½ width club.
*Pamphila*, Fab. Europe to N. Asia. N. W. India. N. America. (*Urbicola*, Hub.; *Erynnis*, Auct.).
111 (109. 110). Antennæ without apiculus, club blunt.
*Thymelicus*, Hub. Europe to N. C. and W. Asia. N. Africa and N. America. (8 species). (= *Adopaea*, Billberg and *Pelion*, Kir.).
112a (102b). F internal cell veinlet with well marked branch to origin of v3 or 4. Usually dark brown with hyaline spots. F. apex cell produced.

**Gegenes Group.**

112b (114a). Antennæ very long = ⅔ costa. Palpi erect, 3rd joint very short. F v2 mid base and v11.
112 (113). H with a tuft of long thin hairs base costa and unf scales from basal part v12 obliquely overlying scv. Cilia H white. ♂ upf a small circular brand above vl or a seam from mid vl to v3.
*Sabera*, Swin. New Guinea to Australia. (4 species).
113 (112). H no tuft thin long hairs base costa or unf oblique scales overlying scv. ♂ with brand upf.

**1. Hesperiidæ—Genera—Gegenes Group**—(*contd.*)

*Mimene*, Joicey and Talbot. (= *Mimas*, DeN.). Moluccas and New Guinea area. (9 species including *atropatene*, Fr. and *hasoroides*, Elwes).

114a (112b). Antennæ = ½ costa more or less.

114b (117). Palpi erect, 3rd joint short. F v2 just before v11. H lower end cell produced and bent up ; v7 before v2.

114c (116). Antennæ apiculus short, but well developed and pointed.

114 (115). F v5 only slightly bent down at origin ; v4 mid vs 3 and 5. H cilia white. ♂ in one species unf with a tuft of hairs mid dorsum.

*Iton*, DeN. N. E. India to Celebes.

115 (114). F v5 acutely bent down at origin ; v4 nearer v5. ♂ may have a brush uph and a brand upf ; a tuft near base dorsum unf ; a discal stigma upf ; or no sex marks.

*Baoris*, M. Africa. Syria, India and China to Australia.

(= *Parnara* and *Chapra*, M. ; *Caltoris*, Swin. ; *Polytremis*, Mab. ; *Milena*, Evans.).

116 (114c). Antennæ very short and apiculus minute.

*Gegenes*, Hub Africa. S. Europe to N W. and N. India. (= *Philoodus*, Ramb).

117 (114b). Palpi 3rd joint porrect. Antennæ no apiculus. F v2 nearer base than end cell ; v4 mid 3 and 5. H v5 prominent and bent down at origin.

*Eogenes*, Mab. Asia Minor to C. Asia and Chitral.

**Note.**—The arrangement of genera is based upon Watson's work and any modifications introduced by De Nicéville, Mabille, Elwes, Fruhstorfer, Swinhoe and Bell have been carefully considered. In order to work out the group, I have found it necessary to study the species occurring from Europe to Australia and I have dissected and examined members of nearly every known species. So as to make the key as useful as possible I have included all the genera occurring in the area studied. Except perhaps for Central America the Hesperidæ attain a maximum development in the Indian Empire as regards numbers of species and since species new to India are frequently turning up, I have included in the keys species (not races) occurring in Persia, Central Asia, Thibet, S. W. China, Siam, the Malay Peninsular and the Malay Islands.

The classification of the *Pamphilinæ* presents peculiar difficulties ; I have divided the subfamily into three sections and each section into a number of small groups. I do not consider that further sub-division into sub-families is justified at the present time.

For the Hesperiidæ of Australia I would refer students to ' The Butterflies of Australia ' by Waterhouse and Lyell, 1914. For the Malay Peninsular there is Distant's ' *Rhopalocera Malayana*,' 1888. For Java there is ' The Rhopalocera of Java' by Piepers and Snellen, 1910. For Sumatra there is ' The Butterflies of Sumatra' by De Nicéville and Martin, 1895. There are various old lists of the butterflies of the Philippines, Buru, Ke Islands, etc., but generally speaking the Hesperiidæ of the area from Borneo to New Guinea require a great deal more investigation.

**Key to Species.**

**1. 1. Hasora.** The Awls (referring to the shape of the Palpi). (Plate 30).

Above dark brown, usually unmarked in the ♂ ; ♀ usually with pale yellow hyaline spots F. Below plain, may be purple or green washed and may have a prominent pale band H.

1a (6a). Tegumen with a single pair of horns at the back. ♂ without brand upf.

**Myra Group.**

1b (5). Unh no prominent pale band.

1c (4). Unh no green wash.

**I. 1. Hasora—Myra Group**—(*contd.*)

1d (3). Unh no dark central band.

1 (2). Tornus H not yellow. Above unmarked ; cilia H fuscous. ♀ uph basal ⅓ clothed yellow hairs. Unh brown, no prominent pale spot over the black tornus. Small with rounded wings.

*mus pahanga*, Evans. (45–50). Gunong Tahan, Pahang. Perak. The Plain Awl. (*mus*, Elwes, from Borneo has cilia uph yellow and unh a prominent pale subtornal spot ; paler). R.

2 (1). Uph and unh tornus broadly yellow. ♀ with large hyaline yellow spots upf.

*myra*, Hew. (52). Java and Sumatra. The Yellow Awl.

3 (1d). Below dark brown with a dark discal band, paler beyond band. Lobe H insignificant.

α. Below with a slatey glaze ; unh small pale yellow spot end cell and a pale subtornal spot ; the tornus is not dark. ♂ upf usually with one or two minute apical spots. ♀ with prominent apical and discal spots.

*lizetta anura*, DeN. (45–55). Mussoorie to N. Burma. C. and W. China. N. Siam. The Lobeless Awl. R.

β. Below dark brown with no slatey glaze. Unh no pale cell spot and subtornal patch obscure, but tornus is black. ♂ upf no apical spots.

*lizetta lizetta*, Plotz. Probably S. Burma. Malay Peninsular, Sumatra, Java, Nias and Sumbawa. (= *hadria*, DeN. ; *wortha*, Swin. ; *tantra* and *avajra*, Fruh.). R.

4 (1c). Unf apex and costa and all unh washed greenish blue, tornus black and a pale subtornal patch. ♀ upf small pale yellow hyaline spots in cell, 2 and 3.

*salanga*, Plotz. (50–55). The Green Awl. Dawnas—Malay Peninsular, Nicobars, Sumatra, Java and Borneo. (= *woolletti*, Riley). R.

5 (1b). Unh broad bluish white discal band, outwardly diffuse and broken above black tornal lobe ; washed bluish inside the band. Unf some bluish white scaling end cell and an obscure narrow discal band, curved in at costa. ♀ upf prominent pale yellow discal spots in 2 and 3, which may be traceable as dots unf in ♂. Very like *vitta*.

*proxissima*, Elwes. (45–50). The Scarce-banded Awl. Siam. Borneo. Philippines. VR.

6a (1a). Tegumen with 2 pairs of horns at the back.

6b (9a). ♂ no brand.

**Badra Group.**

6 (7a). Unh no pale discal band ; a prominent white spot end cell and a pale subtornal spot over the black lobe which is well developed.

α. ♂ below dark ochreous, apex F and disc H broadly pale ochreous ; in ♀ purple washed. ♂ upf no apical dots ; ♀ large yellow spots in cell, 2 and 3 and apical dots 6–8.

*badra lanka*, Evans (50–55). The Common Awl. Ceylon. NR.

β. ♂♀ below strongly purple washed and unf a black area beyond end cell. ♂ upf usually with apical dots.

* *badra badra*, M. S. India, Sikkim to Burma, Andamans, China, Formosa. Malay Peninsular, Sumatra, Java, Borneo to Lombok. C. (= *godama*, *sankarya* and *madatta*, Fruh. In the Philippines, Celebes and Moluccas there occurs a race with much larger spots unh, *quadripunctata*, Mab. = *gnaeus*. Pl. and *celebica*, Stg.).

7a (6). Unh with a pale discal band.

7 (8). ♂ above unmarked. ♀ with large white spots in cell, 2 and 3 and apical dots ; bases clothed pale hairs, broadly so on H. Unh dark brown with broad white sharply defined discal band narrowing posteriorly, becoming in ♂ obsolete below v2.

*borneensis*, Elwes. (60–64). Borneo.

8 (7). Upf always a prominent white apical dot in 6 and rarely also in 7 ; prominent discal spots in 2 and 3 in ♀ and usually a dot in 3 in ♂. Unh obscurely blue washed, a broad bluish white discal band, outwardly diffused and broken subtornally ; tornus black. Unf some obscure bluish white scaling at end cell, apex pale and inner edge of pale area straight, not curved as in *proxissima*, *alexis*, *taminatus*.

**I. 1. Hasora—Badra Group.**—(*contd.*)

*vitta*, But. (45-55). The Plain Banded Awl. Orissa, Sikkim to Burma, S.W. China, Andamans, Siam, Malay Peninsular, Sumatra, Java, Borneo. (= *chabrona*, Pl., *proximata*, Stg., appears to be the race from the Philippines and Celebes).

*subcœlestis*, Roth, New Guinea; *umbrina*. Mab = *habroï*, Swin., Celebes; *discolor*, Fd. = *mastusia*, Fr. Moluccas to Australia, belong to this group; *latifascia*, J and T; *splendida*, Mab.; *simillima*, Roth. are probably conspecific with *discolor*.

9a (6b). ♂ with a brand.

9b. (11a). ♂ brand consists of glandular streaks along vs 1, 2 and 3.

**Thridas Group.**

9 (10). Unh plain brown with a more or less well developed pure white discal band. ♂ upf with pale yellowish white discal spots in 2 and 3 and apical spot in 6.

*moestissima coulteri*, WM and DeN. (52-60). The Large-banded Awl. Cachar. VR. (races appear to be *palinda*, Swin, Java, Nias and probably Sumatra: *minsona* = *mimosa*, Swin, Borneo; *pathana*, Fruh, Philippines; *moestissima*, Mab, Celebes; ? *boisduvali*, Fd, Moluccas; *postfasciata*, Roth, New Guinea and *haslia*, Swin, Australia and Dampier).

10 (9). Unh dark brown with a strong violet wash, no white band. ♂ above unmarked; ♀?

*leucospila parnia*, Fruh. (48-56). The Violet Awl. S. Burma. Malay Peninsular. Nicobars, Sumatra, Java, Borneo. VR. (*matisca*, Fruh Philippines; *leucospila*, Mab, Celebes; *violacea*, Elwes, Moluccas).

(*thridas*, Bdv. = *ribbei*, Pl, *apara*, Fr, and *chalybeata*, Joicey and Talbot, Moluccas, Waigou, Obi. belongs to this group).

11a (9h). ♂ brand is a continuous seam.

**Alexis Group.**

11b (14). Uph no yellow band.

11 (12a). Unh no pale band; dark ochreous brown with a faint purple wash, centrally darker; obscure pale spot end cell and over tornal lobe. ♀ upf large pale yellow hyaline discal spots in cell, 2 and 3 and apical spots. Very like *badra*.

*simplicissima lioneli*, Fruh. (44-48). The Simple Awl. Dawnas to S. Burma, Malay Peninsular, Sumatra, Java and Borneo. R. (= *yanuna* and *tyrius*. Fruh. Philippine race *mixta*, Mab = *prabha* and *cirta*, Fruh and *philetas* and *cerlhia*, Plotz. *fenestrala*, Fruh, Celebes. *simplicissima*, Mab, Moluccas).

12a (11). Unh with a prominent pale discal band.

12 (13). Unh discal band bluish or purple white, narrow, outwardly diffused; wing more or less glossed dull steely blue. ♀ upf prominent white discal spots in 2 and 3 and apical spot in 6 (rarely also in 7).

*alexis alexis*, Fab. (45-50). The Common-banded Awl. Ceylon, India, Burma, China and Siam to the Celebes. C. (= *chromus*, Cr. and *ambasa*, M; *inermis*, Elwes, Liu Kiu Is.: *vairacana*, Fruh, Formosa; *canostigma*, Joicey and Talbot, Hainan are probably races. The race flying from the Moluccas to Australia, etc., should probably be called *khoda*, Mab = *ganapata*, Fruh; *attenuata*, Mab; *contempta*, Plotz; *lucescens*, Lucas; *bilunata* and *atrox*, But).

13 (12). Unh discal band sharply defined and pure white.

α. Unh base dull indigo blue and discal band very broad. Unf apex and unh margin clothed ochreous scales. ♀ upf small white spots in 2 and 3.

*taminatus taminatus*, Hub. (45-55). The White-banded Awl. Ceylon and S. India. C. (=*chromus*, Auct and *butleri*, Aurivill).

β. As last but no ochreous scaling below and unh discal band narrower.

*taminatus bharara*, Fruh. Sikkim—N. Burma and W. China. NR.

γ. Unh steely blue from base up to the discal band, which is very narrow.

*taminatus almea*, Swin. S. Burma. Siam and Malay Peninsular to Borneo. NR.

δ. Unh brilliant metallic green; discal band narrow. ♀ spots upf may be absent or are very small.

**I. 1. Hasora—Alexis Group.**—(*contd.*)

**taminatus malayana*. Fd. Andamans and Nicobars. C. (Felder gives Malacca as the type locality, but his figure exactly represents the Andaman form).

(*padma*, Fruh = *galaca*, Fruh, Philippines, *attenuata*, Stg = *meala*, Swin, Celebes. *amboiensis*. Swin = *acakra*, *pramidha* and *dipama*, Fruh, Moluccas and Waigou).

14 (11b). Uph a broad yellow central band, cilia yellow. Upf conjoined yellow hyaline discal spots in 2, 3 and cell, and apical spots 6–8. Below similar pale brown basally ; unf more or less purple washed about apex.

* *schonherri schonherri*, Lat. (40–50). The Yellow-banded Awl. R. Assam to Burma, Malay Peninsular and islands to Borneo. ( = *chuza*, Hew. and *cridatta*, Fruh. The Philippine race is *gentiana*, Fd = *saida*, Hew, with non-hyaline spots upf and the yellow band to the base uph).

(In this group are *celaenus*, Cr = *lagubris*, Bdv and *akshita*. Fruh, Moluccas to Australia and *hurama*, But = *vivapana* and *perplexa*, Fruh, *burgeri*, Ribbe and *dampierensis*, Roth. Celebes to Australia).

**I. 2. Ismene.** The Awlets. Mostly unmarked dark brown above and striped below. (Plate 30.)

1a (3a). Unh no striping, veins not pale and no black spot at base 8. Cilia H orange, lengthened tornally. ♂ with a brand upf and v3 nearer 4 than 2.

**Ilusca Group.**

1 (2). ♂ brand upf broad, edges zigzag, consisting of long and short conjoined streaks. Above bases and most of H clothed orange red hairs. Upf white hyaline spots in 2 and 3 more prominent in ♀, may be absent in ♂. Unh slate.

* *mahintha*, M. (40–45). Assam to Burma. The Slate Awlet. NR.

2 (1). ♂ brand upf narrow. Above mostly orange yellow. Unh narrow pale purple white discal band, extending to F.

*nestor*, Mosch. (45–50). The Banded Awlet. Java, Flores. R. ( =*tirdusi* Pl ; *ionis*, DeN ; *atrinotata*, Mab ; *rubrocincta*, Mab ; *antigone*, Rob ; *zonaras*, Fruh). (Belonging to the group—*aquilina*, Spey = *janskowskii*. Ob and *chrysaeglia*, But, Japan and N. China—*ilusca*, Hew, Celebes).

3a (1a). Unh more or less striped and a prominent black spot at base 8.

3b (10a). Unh striping orange or purple. H cilia orange.

**Oedipodea Group.**

3c (7a). ♂ upf with a brand and v3 bent down to near v2.

3d (6). ♂ brand consists of black modified scales. ♂ upf basal costal orange streak and unf broadly paler.

3e (5). ♂ brand basal, against mv from v1 to v4 ; large and prominent ; v1 distorted.

3 (4). About 48 mm. expanse.

α. ♂ H v8 somewhat distorted and costa white ; v6 bowed. Unh more or less orange striped ; somewhat prominent orange discal patch beyond cell F and H. No blue hairs on thorax above.

*oedipodea alaphus*, Watson. (40–50). The Branded Orange Awlet. Ceylon. NR.

β. ♂ H v8 not distorted and v6 only slightly bowed. Unh dorsum more orange. Blue hairs on thorax above.

*oedipodea aegina*, Plotz. Mussoorie to N. Burma. S. W. China. NR.

γ. ♂ H v6 not distorted and v6 straight. Unf orange discal areas replaced by greenish. Unh pale purplish edged greenish streaks on a pale greenish brown ground.

*oedipodea tuckeri*, Elwes. *Tavoy*. VR (? unique).

δ. ♂ H v8 distorted and apex folded over, v6 acutely bowed towards v4. Above prominent blue hairs on thorax and in cell uph. Below orange areas prominent and dorsum H broadly orange.

**I. 2. Ismene—Vasutana Group.**—(*contd.*)

***striata***, Hew. (55–65). The Branded Green Awlet. R. W. China (=*septentrionis*, Fd).

11 (10). ♂ no brand and v3 near v4; dark brown, uph clothed orange hairs. ♀ above base and thorax clothed blue hairs. Unf small hyaline or semi-hyaline white spots in 2 and 3.

*vasutana*, M. (55–65). The Green Awlet. Kumaon to N. Burma (= *rahita*, Fruh).

12a (10b). H cilia whitish grey. Below black, veins green and a green stripe between each vein.

12 (13). ♂ upf rather obscure brands along vs 1, 2 and 3; v3 near v2. Above ♂ prominent orange costal streak F, more obscure in ♀. Below uniform, stripes bluish green.

*amara*, M. (45–55). The Small Green Awlet. Sikkim—S. Shan States, Andamans. (= *pindapatra*, Fruh). NR.

13 (12). ♂ upf no brand and v3 close to v4. ♂ above rather pale brown with pale yellowish streaks between veins and uph costa broadly pale as in *harisa*. ♀ purple brown, base F and nearly all H green. Below paler, striped pale green; unh broad pale streak from base through cell to termen.

α. ♂ above pale striping much more developed; ♀ pale diffuse spots upf in 2 and 3. Smaller.

*gomata kanara*, Evans (50–55). The Pale Green Awlet. N. Kanara, S. India. R.

β. Larger and darker.

* *gomata gomata*, M. (60–65). Sikkim to Assam. R.

(Races are—*lara*, Leech, China.—*lalita*, Fruh, Malay Peninsular, Sumatra, Borneo.—*vajra*, Fruh, Java.—*lorquini*, Mab = *mindorana*, Fruh, Philippines. —*radiosa*, Pl, Celebes).

(*hemixanthus*, Roth, New Guinea, belongs to this group).

**I. 3. Bibasis.** The Orange-tail Awl. (Plate 30).

Above unmarked. Cilia H and end abdomen orange. Unf large white central patch above mid dorsum. Unh broad white discal band with diffused edges.

* *sena sena*, M. (45–50). Ceylon. S. India. Mussoorie to Burma. Andamans. Siam and Malay Peninsular. NR. (races are—*uniformis*, El, Sumatra, Java, Borneo, Bawean and Lombok—*sumbawana*, El, Sumbawa—*palawana*, Stg = *vaicravana*, Fruh, Philippines and doubtfully Celebes).

**I. 5. Rhopalocampta.** The Awlking. (Plate 30).

Above bluish purple brown, more or less overlaid basally with dark greenish hairs (bluish in ♀). Below green with narrow black veins. H tornus and cilia orange.

α. Uph tornal end dorsum and cilia orange. Unh tornus black broadly and irregularly surrounded orange.

* *benjaminii benjaminii*, Guer. (50–55). Ceylon. S. India. Simla to Karens. China. NR. (= *xanthropogon*, Koll. Allied races are *japonica*, Murray, Japan—*formosana*, Fruh, Formosa. The genitalia of the Ceylon form are distinct and 3 very distinct types of genitalia are to be found in Assam; in Mussoorie and again in Java the larva has been found to be dimorphic).

β. Lemon yellow at tornus instead of orange and the yellow area uph and unh much more extensive.

*benjaminii crawfurdi*, Dist. S. Burma, Malay Peninsular, Sumatra, Nias, Borneo. (*subcaudata*, Fd. with the tornal yellow still more extensive is the race in Java, Bali and Banka. In the Celebes *benjaminii* is replaced by *plateni*, Stg = *renidens*, Man with race *adhara*, Fruh in the Philippines. *iluensis*, Ribbe occurs in the Moluccas with race *ornatus*, Roth in New Guinea).

**I. 6. Badamia.** The Brown Awl. (Plate 30).

Above dark brown, bases prominently paler. Upf ♂ with whitish hyaline spots in cell 2 and 3; in ♀ spots are larger, spot in 2 is conjoined to cell spot and there is a small spot in 1 against v1. Below pale brown, tornus H dark brown, crowned by a whitish spot.

**I. 2. Ismene—Oedipodea Group**—(*contd.*)

*oedipodea oedipodea*, Swainson. Probably S. Burma, Peninsular Siam, Malay Peninsular and Islands to Philippines. NR. ( = *consobrina*. Pl and *belesis*, Mab : *athena*, Fruh is the Tonkin race).

4 (3). Expanse 58–66 mm. No blue hairs on thorax. ♂ H v8 not distorted and v6 straight ; costa upf brown. Below no orange, pale purple discal patches and streaks between veins H.

*oedipus*, Elwes. The Large Branded Orange Awlet. Perak (F.M.S. Mus). Sula Islands. VR.

5 (3e). ♂ upf brand central from mid v1 to base v4 ; variable and may be divided into spots ; rather obscure and never so dark. Above ♂ plain ; ♀ with bluish hairs at base and thorax.

α. ♂ brand restricted to 2 patches on v2 and base v3. Above ♂ prominent basal costal streak on F. Below narrow orange striping, more intense mid disc beyond cells.

*jaina fergussoni*, DeN. (60–70). The Orange Awlet S. India to N. Kanara. NR.

β. ♂ brand as in last. ♂ upf basal costal orange streak obscure, unf prominent white spot in cell and a series of dull purple white spots 4–8 ; rather obscure in ♂.

*jaina jaina*, M. Mussoorie to Sikkim. NR.

γ. ♂ brand a square patch from just above v1 to v3. As last, but larger and darker.

* *jaina vasundhara*, Fruh. Assam to Karens. NR.

δ. ♂ brand more extensive. Below spots on F more obscure. Upf orange striping more prominent and unb striping purple rather than orange.

*jaina margana*. Fruh. Dawnas. Siam. R.

(*formosana*, Fruh is the Formosa race).

6 (3d). ♂ upf brand replaced by a dense patch of shining recumbent hairs over lower part of disc from scv to v1. Upf basal costal orange streak prominent. Below striping and pale patches beyond cells pale purple ; unf obscure spot in cell.

*phul*, Mab. (60–65). The Plush Awlet. Perak, Borneo, Philippines and Celebes. VR. ( = *tolo*, Pl and *excellens*, Hopf).

7a (3c). ♂ no brand.

7 (8a). ♂ F v3 bent down close to v2. Palpi below grey and orange at sides. Below more or less violet washed and H obscurely striped orange. ♂ upf prominent basal orange costal streak.

*anadi*, DeN. (50–55). The Plain Orange Awlet. Mussoorie to Karens. Siam. VR.

8a (7). ♂ F v3 nearer v4 than v2 as in all ♀♀.

8 (9). F v4 much nearer v5 than 3, which is opposite v11. ♂ upf very obscure basal orange costal streak ; ♀ broadly blue at bases. Below very prominent orange striping and large orange patches beyond cells and at base H.

*etelka*, Hew. (65–75). The Great Orange Awlet. Karens to S. Burma. Malay Peninsular and Islands (except Java) to Borneo. R.

9 (8). F v4 mid vs 5 and 3, which is opposite v10. ♂ above rather pale brown, lighter below v3 F and costal orange streak obscure ; uph costa to v7 white, extending in centre of space 6 to v6. ♀ dark brown, bases and thorax clothed blue hairs. Below evenly orange striped with streaky orange patches beyond cells.

*harisa harisa*, M. (45–55). The Orange-striped Awlet. Sikkim to Burma. Andamans. C. (Races are—*purpurea*, Riley and Godfrey, E. Siam—*asambha*, Fruh, Tonkin.—*moncada*, Fruh = *distanti*, Swin MS, Malay Peninsular—*crinatha*, Fruh, Java, Sumatra and Borneo.—*niasana*, Swin, Nias.—*imperialis* Plotz, Celebes). (To the group belong *lysima*, Swin, Ke Is.—*lusca*, Swin, Celebes.)

10a (3b). Unh striping green and black, very prominent.

**Vasutana Group.**

10b (12a). H cilia orange. Below green with narrow black stripes between each vein and veins black.

10 (11). ♂ upf prominent separate brands along vs 1, 2, mv and 3 ; v3 close to v2. Above dark brown, clothed yellow hairs. Unf no spots.

**I. 6. Badamia**—(*contd.*)

**exclamationis*. Fab. (50-55). All India and China to Australia. Ceylon, Andamans and Nicobars. C. (= *ericus*. F; *thymbron*, Fd; *ladon*, Cr; *forulus*, Hub).

**I. 10. Orthopaetus.** The Dawnflies. (Referring to their habit of flying at dawn). (Plate 30).

Large ferruginous brown insects. Upf prominent white hyaline spots in cell 2 and 3 and more or less prominent apical spots. Uph a discal row of dark spots.

1 (2a). Uph discal spots large, black, yellow ringed. Above fulvous brown. ♂ upf with a costal fold.

*lidderdali*, Elwes. (65). Lidderdale's Dawnfly. Bhutan. VR. (? unique). (Race *melli*, Hering, Tsha-jiu-san, China).

2a (1). Uph discal spots small and a dark spot end cell; in ♀ some of the spots may be hyaline white. Upf apical spots obscure and dark in the ♂; prominent and hyaline in ♀.

2 (3). ♂ with costal fold upf. ♂ above fulvous brown; ♀ dark ferruginous brown.

**lalita*, Doh. The Fulvous Dawnfly. Lushai, Assam to Burma, Siam. R.

3 (2). ♂ no costal fold. Above rich dark fulvous brown.

*phanæus*, Hew. (60-65). The Dark Fulvous Dawnfly. R. Malay Peninsular, Sumatra, Borneo and very probably S. Burma.

**I. 11. Capila.** The Striped Dawnflies. (Plate 30).

Large dark brown insects, more or less striped in the ♂ and with a white band upf in ♀, usually.

1 (2a). Upf prominent hyaline white spots in cell, 2 and 3; small spot in 1 just below spot in 2; prominent apical spots in 6-8. Above olive brown. Uph obscure black veins and spots in 2 and 3. H square, angled at apex and v3.

*omeia*, Leech. (60). The Olive Dawnfly. W. China. R.

2a (1). Upf at most a single spot in ♂ and ♀ with a continuous hyaline white band; no apical spots.

2 (3a). ♂ upf single large hyaline white spot end cell; bases and thorax fulvous; apex F produced and outer margin straight. ♀ upf an irregular white band from mid costa to tornus, as in *zennara*, but inner edge of spot in 2 very irregular and reaches to inner edge of spot in 3; purple basal suffusion. Antennæ longer than usual.

**mackwoodi*, Evans. (70). Mackwood's Dawnfly. N. Shan States to Karens. S. E. Siam. (= *barroni*, Riley and Godfrey). VR.

3a (2). ♂ upf no hyaline spot.

3a (5). ♂ above uniform dark brown, with prominent pale stripes between veins.

3 (4). ♂ above uniform, rather pale brown, head, etc., dark brown; termen convex. ♀ upf discal band very irregular; uph no pale stripes.

*zennara*, M. (65-80). Sikkim. VR. The Pale Striped Dawnfly. (Race *hainana*, Crowley, Hainan).

4 (3). ♂ above base, head and thorax orange. ♀ upf central white band regular with parallel edges; uph dull pale stripes outwardly. ♂ apex F produced and margin straight.

**jayadeva*, M. (65-75). The Striped Dawnfly. Sikkim to Assam. R. (Race *pussa*, Hering, China; only ♀ described and is likely to prove to be the ♀ of *translucida*).

5 (3a). ♂ above olive brown, discs broadly pale with black veins; margin and base broadly dark.

*translucida*, Leech. (68). The Chinese Dawnfly. VR. W. China.

**I. 12. Crossiura.** The Fringed Dawnfly.

♂♀ above very dark brown; upf shining white hyaline band from scv across cell to 1 with small spot beyond; in ♀ band is continuous from costa to dorsum at tornus; 5 small apical spots from 4-8. Uph in ♀ a discal series of small dark spots, with diffuse fulvous rings.

[illegible], DeN. (60-70). Khasi Hills. VR. (races—*kiyila*, Fruh, C. [illegible]*is*, Joicey and Talbot, Hainan).

**I. 13. Calliana.** The White Dawnfly. (Plate 30).

♂ above white ; upf with broad dark brown apex and dark marginal spots in 2 and 3 ; uph with one or more black discal spots showing from below. Unf basal ½ cell and costa dark brown and a similar patch beyond cell; apex as above but dark brown to tornus ; unh a discal series of large black spots, also a spot end cell and at bases 1 and 8. ♀ quite different ; above dark brown with upf a very large hyaline white spot end cell, continued as a non-hyaline spot to the costa, also large hyaline discal spots in 2 and 3 ; uph with small black discal spots ; unh black spots as in ♂.

* *pieridoides*, M. (60–70). Assam. Dawnas. W. China. R. (race *adamsi*, Evans ; larger, more heavily marked and the cell upf black dusted, Borneo—3 ♂, in Adams collection, B.M—1 ♂ Selangor Pahang border, 'The Gap.' F. M. S. Mus.).

**I. 15. Charmion.** The Velvet Flat. (Plate 30).

♂ above velvet black ; ♀ browner. Upf broad white hyaline band with bluish reflections from v2 to scv ; at end cell in ♂ band is constricted at upper end, in ♀ even, but nicked at v4. Palpi brown below, orange at sides. Antennæ plain black.

* *ficulnea*, Hew. (45–50). S. Burma, Malay Peninsular, Siam, Sumatra, Borneo. NR. (= *signata*, Druce ; *leucographa*, Pl ; *queda*, Pl ; *nibana*, Fruh. Races are—*niasica*, Mab = *ovalis*, Mab, Nias—*tola*, Hew = *zawi*, Pl and *pleisoneura*, Stg, Celebes. Not recorded from Java or Philippines).

**I. 16. Celænorrhinus.** The Flats. (Plate 30).

Above dark brown. Upf with a hyaline white or yellow discal band from scv at end cell to at least v2, composed of conjoined or detached spots ; also usually 5 apical spots in 4–8. Uph and unh often with non-hyaline yellow spots. (♂ of *spilothyrus* is aberrant, having no discal markings upf).

1a (2la). Upf hyaline spots not coalesced spot in 3 not reaching base 3 (except individuals of *munda and saturatus*). Uph and unh usually with orange spots and cilia prominently chequered. Upf hyaline spots white, except *saturatus* and *snelleni*.

1b (4a). Unf 4 outer spots in 1, the outer two being distinct non-hyaline white spots. Antennæ white banded below club. Uph yellow spots small.

**Ambareesa Group.**

1c (3). Upf and unf prominent spot in 1 before middle. Cilia F chequered.

1 (2). Uph basal spots and spot end cell obscure and dusky ; discal spots small and usually prominent. Upf cell spot continued to costa.

*ambareesa*, M. (45–55). The Malabar Flat. S. India—Bengal. NR.

2 (1). Uph spot end cell large and prominent, other spots small. Upf cell spot not continued to costa.

*consanguinea*, Leech. (43–47). The Mupin Flat. W. China. R. (race *ratna*, Fruh, Formosa).

3 (1c). Upf there may be a minute spot before middle in 1, but it is not reproduced unf. Uph spot end cell and discal spots prominent.

*pyrrha*, DeN. (45–55). The double spotted flat. Bhutan and Kumaon to N. Burma. NR.

4a (1b). Unf only 2 or fewer outer spots in 1, but there may be some white suffusion between these spots and the margin. Upf cilia not chequered.

4b (9a). Upf and unf a pale spot before the middle in 1. (May be present in individuals of *munda*).

**Palemaya Group.**

4c (7a). Unh no yellow basal streaks.

4 (5a). Antennæ shaft white above in the ♂. Cilia H pale yellow, unchequered. Upf spots small and few.

*pero*, DeN. (50–60). The Mussoorie Spotted Flat. Mussoorie to N. Burma. R.

**I. 16. Celænorrhinus.—Pulomaya Group.**—(*contd.*)

5a (4). Antennæ ♂ ♀ white banded below club. Cilia H prominently chequered. Uph spots large and numerous.

5 (6). Upf central and lower discal spot in 1 small and rounded. Palpi yellow and brown below. Apex F produced. Apex of tegumen undivided, but surmounted by 2 long curve spines ; clasp undivided.

* *pulomaya*, M. (45–50). The Multi-spotted Flat. Kangra to Nagas. W. China. NR. (= *pila*, Tytler and *lucifera*, Leech).

6 (5). Upf central and lower discal spot in 1 large, yellow, irregular, as large as the upper discal spot in 1. Palpi yellow below. Apex F rounded, termen convex. Tegumen divided at apex into 2 broad points, no spines ; clasp divided.

*tytleri*, Evans. (45–50). Tytler's Multi-spotted Flat. Mussoorie to Manipur. R.

7a (4c). Unh with basal yellow streaks. Uph spots prominent.

7 (8). Unh double spot mid cell. Antennæ white banded below club. Uph spots prominent.

*maculosa*, Fd. (45-50). The Streaked Flat. C. and W. China, Szechuan. C.

8 (7). Unh single spot mid cell. ♂ Antennæ whitish in front. Apex F produced. Larger.

*aspersa*, Leech. (60). The Large-streaked Flat. Nagas. Chia-kou-Ho, China. VR. (= *clitus*, DeN).

9a (4b). Upf and unf no spot before the middle of 1 (except individuals of *munda*) ; in *flavocincta*, there is a dark spot.

9b (13a). Uph postdiscal spots large and prominent ; spots in 2, 3 and 6 always larger than those in 1, 4 and 5.

**Sumitra Group.**

9 (10a). Above bases ochreous brown and unh except for the brown margin entirely orange with large brown spots. Antennæ shaft white above in ♂.

*flavocincta*, DeN. (70). The Bhutan Flat. Bhutan. VR.

10a (9). Above and below uniform dark brown.

10 (11a). Unf cell spot not produced to costa. Antennæ shaft white above in ♂. Uph cilia broad orange, only faintly brown at ends veins. Upf 1 or 2 spots in 1, spot in 3 minute or absent.

* *patula*, DeN. (55-65). The Large-spotted Flat. Bhutan, Sikkim to Nagas. R.

11a (10). Unf cell spot to costa. Uph cilia prominently chequered.

11 (12). Uph only a faint spot end cell and postdiscal series of spots ; unh no basal spots. Antennæ shaft white above in ♂. Upf single spot in 1.

*sumitra*, M. (60-65). Moore's Spotted Flat. Sikkim to Assam. VR.

12 (11). Uph prominent spot and cell end unh with prominent basal spots. Upf 2 spots in 1. Antennæ white banded below club and shaft white chequered.

*plagifera*, DeN. (50–60). DeNiceville's Spotted Flat. Sikkim to Assam W. China. NR. (= *pluscula*, Leech).

13a (9b). Uph orange spots small or absent.

13b (18a). Upf spot in 2 extends well behind origin of v3 ; its inner edge well behind centre of cell spot.

**Leucocera Group.**

13c (15a). Antennæ club white above and in ♂ shaft as well ; ♀ shaft plain, not chequered. Uph usually at least traces of a spot end cell.

13 (14). Apex F not produced ; termen not so long as dorsum.

α. Uph cilia chequered pale yellow and brown ; postdiscal spots prominent or absent. Upf spot in 3 quadrate, linear or absent ; 1 or 2 spots in 2 ; cell spot may or may not be prolonged to costa. Very variable, but it seems impossible to define local races.

*leucocera leucocera*, Koll. (45-55). The Common Spotted Flat. S. India to Bengal. Murree to Burma. Peninsular Siam and Malay Peninsular. C. (= *leucocirca*, El and *putra*, M).

β. Uph cilia chequered bright orange and brown ; postdiscal spots prominent bright orange.

**I. 16 Celænorrhinus—Leucocera Group—(*contd.*)**

*leucocera chinensis*, Swin. W. China. (This is Leech's *sumitra* and is very like *plagifera*, but the antennæ and genitalia are quite different.

γ. Above very black. Cilia H entirely dark brown. Upf apical spots small and separate, no spots in 4 and 5 or 3, nor does cell spot extend to costa; only one spot in 1. Uph unmarked. Variable.

*leucocera brahmaputra*, El. Sumatra, Java, Bali and Borneo.

14 (13). Apex F produced; termen = dorsum. ♂ upf spots reduced, no spot in 1 (♀ 2). Uph cilia unchequered (in ♀ faintly chequered) yellow. Antennæ the club only is white in the ♂; in ♀ also upper half of shaft.

*simula*, Hew. (55–60). The Narrow Spotted Flat. Sumatra and Java. (= *angustipennis*, El and *binotatus*, Fruh).

15a (13c.) Antennæ lower part of club white or yellow, shaft white spotted inside. Uph unmarked.

15b (17). Upf spots white. Cilia very prominently chequered pale yellow and brown.

15 (16). Upf spot in 3 conjoined to spot in 2 and to cell spot, usually filling base of cell 3, but may leave a tiny brown triangular spot. Upf apical spots conjoined, 2 equal spots in 1 conjoined upf. Unh only yellow bar end cell. Upf cell spot extends to costa.

*munda*, M. (45–50). The Himalayan Spotted Flat. Murree to Sikkim. S. Shan States. NR.

16 (15). Upf and unf spot in 3 detached; apical spots separate. Unf lower spot in 1 narrow, vertical, quite separate from, lower spot. Unh small yellow spots.

*maculicornis*, El (45–50). Elwes' Spotted Flat. Assam to Manipur. Siam. (= *vitruvius*, Fruh; race *formosanus*, Fruh, Formosa). R.

17 (15b). Upf spots deep yellow and spot in 3 conjoined as in *munda*. Above clothed dark ochreous hairs. Unh obscure suffused ochreous spots. Cilia dark brown.

*saturatus*, El. (45–50). The Yellow-spotted Flat. Java, Bali, C.

18a (13b). Upf spot in 3 does not extend behind origin of vein 3, its inner edge under centre of cell spot; costal spot above cell spot usually yellow. Uph usually large obscure dark spots and unh small diffused orange spots. Unf pale diffused patch in 1 between discal spots and termen.

**Spilothyrus Group.**

18 (19a). Uph cilia plain dark brown. Antennæ plain, ochreous under club. ♀ with normal spotting; upf 2 spots in 1. ♂ abnormal; above velvet black; upf unspotted or at most 3 golden apical spots and a small upper spot in cell under origin of vll with a spot on the costa above it and a small conjoined outer spot below it.

*spilothyrus*, Fd. (40–50). The Black Flat. Ceylon. (= *infernus*, Fd). C.

19a. (18). Uph cilia chequered. Upf at most upper spot in 1.

19 (20). Antennæ club white and shaft white spotted.

α. Uph obscure large black spots; unh obscure small orange spots.

*ruficornis area*, Plotz. (45–50). The Tamil Spotted Flat. S. India to Bengal. NR. (= *fusca*, Hampson).

β. Much blacker. Uph and unh plain except for yellow bar end cell unh.

*ruficornis ruficornis*, Mab. Java. Celebes. (= *piepersi* Fruh.).

20 (19). Antennæ base club white above and shaft whitish in ♂, no white spotting. Upf spot in 2 large and outwardly more oblique than usual, lower outer edge midway between termen and inner edge. Upf markings pale yellow in ♂, white in ♀. Uph large dark diffused spots and unh small diffused yellow spots. Upf apical spots in line and coalesced.

α. Upf with spots in 4, 5 and upper dot in 1.

*snelleni sema*, Evans. (45). Java. R.

β. Upf spots in 4, 5 and 1 absent.

*snelleni snelleni*, Fruh. Celebes. (= ? *trimaculata*, Roth, Dampier).

21a (1b). Upf discal band compact and confluent, spot in 3 always to base cell 3.

21b (25a). Upf discal band white or (*tibetana*) very pale yellow.

**I. 16. Celænorrhinus**—(*contd.*)

**Tibetana Group.**

21 (22a). Upf discal band does not extend into 1 and only in ♀ to costa; rarely a spot in 4 and never in 5. Uph obscure large dark spots in ♂. Unf diffused tornal patch. Unh plain. Cilia and antennæ plain, dark.

α. ♂ unf very narrow costal spot over cell spot; paler. ♀ pale brown and upf cell spot extends to costa.

*asmara concertus*, DeN (35–45). The White-banded Flat. Assam to Karens. NR.

β. Similar but apex F produced.

*asmara cacus*, DeN. Rangoon. NR.

γ. ♂ unf costal spot prolonged full width to costa. ♀ upf cell spot not extended to costa. Darker.

* *asmara asmara*, But. S. Burma, Malay Peninsular, Borneo. NR. (Races of rather doubtful value are—*goto*, Mab, 'Japan' or more probably Liu Kiu Islands or S. China—*aditta*, Fruh, Siam—*ayata*, Fruh, Sumatra,—*milinda*, Fruh, Java—*palajava*, Stg. Philippines).

22a (21). Upf discal band always extending into 1.

22 (23a.) Upf discal band not extending to costa above cell; narrow, reaches v1; apical spots 4, 5, 6–8 prominent. H cilia uniform yellow white. Unf no subtornal pale patch. Unh yellow bar end cell. Antennæ white banded below club.

*badia*, Hew. (55–60). The Scarce Banded Flat. Sikkim to Assam. VR.

23a (22). Upf discal band extending to costa. Antennæ club whitish below. H cilia always more or less chequered white and brown, especially at apex.

23 (24). Upf discal band pale yellow and extended to v1; usually spots in 4 and 5. Unf no subtornal pale patch. Unh unmarked.

*tibetana*, Mab. (45–55). The Thibet Flat. W. China. Mishmi Hills. Mt. Victoria, S. Chin Hills. (Race *latifascia*, Mab. Yunnan, band much wider). R.

24 (23). Upf discal band white, not reaching v1, only a small upper spot in 1 against outer edge of spot in 2; lower apical spot in 6 out of line, detached and nearer termen. Unf prominent subtornal pale patch. Unh obscure small pale yellow spots.

α. Upf discal band narrow, spot in 3 projects beyond band.

*nigricans nigricans*, DeN. (40–45). The Small-banded Flat. Sikkim to S. Burma. Malay Peninsular. W. Siam. NR.

β. Upf discal band very wide, spot in 3 not projecting. H cilia with only traces of white about apex. Darker.

*nigricans balukinus*, El. Borneo. (= *anoma*, Fruh; *orbiferus*, El, apparently an aberration towards *nigricans*).

25a (21b). Upf discal band bright yellow or orange. Antennæ more or less ochreous below club.

**Dhanada Group.**

25 (26a). Upf discal band less oblique, inner edge directed to dorsum before tornus; lower inner edge of spot in 2 immediately under origin v3, which is at about middle of cell spot. Antennæ always chequered at base. Upf discal band irregular, from costa to mid 1, costal spot non-hyaline; spot in 1 triangular, against outer half of spot in 2; apical spots 6–8 prominent, rarely spots in 4 and 5. Uph obscure large dark spots. Unf suffused subtornal patch, usually conjoined to hyaline spot in 1. Unh traces of small yellow spots, especially end cell and in 1 and 2.

α. Band rather pale golden yellow. Upf no lower spot in 1. H cilia prominently chequered.

*dhanada dhanada*, M. (40–45). The Himalayan Yellow-banded Flat. Mussoorie to Assam. R.

β. Band rather darker. Upf always lower outer tornal non-hyaline spot in 1, conjoined to the hyaline spot. Cilia at least more or less chequered at apex H.

*dhanada affinis*, Elwes. Assam to Burma. NR. (= *zea*, Swin, an aberration from Assam with upf the apical spots irregular and the spot in 1 against the middle of the spot in 2).

γ. As *affinis*, but much smaller and upf no non-hyaline spot in 1.

*andamanica*, WM. and DeN. (35–40). Andamans. R.

**1. 16. Celaenorrhinus—Dhanada Group**—(*contd.*)

δ. Band orange, much wider. Upf there may be a small diffused non-hyaline lower spot in 1, but not conjoined to the hyaline spot; the upper spot in 1 has a more or less prominent tooth on its inner lower edge. Cilia dark brown, not chequered.

η. *dhanada dentatus*, El. (40–45). Borneo (=*lativittus*, El.).

26a (25). Upf discal band more oblique and inner edge directed to tornus; lower inner edge of spot in 2 well forwards of origin of v3, which is well behind centre of cell spot. Cilia unchequered Upf discal band extends to the tornus from the costa. Antennæ and cilia plain.

26 (27a). Upf portion of band in 1 and at costa non-hyaline.

α. Band golden, non-hyaline portions orange; apical spots prominent; inner edge spot in 1 against middle of spot in 2. Uph and unh a more or less prominent pale spot end cell.

* *aurivittata aurivitta*, M. (40-45). The Dark Yellow-banded Flat. Assam to Mergui. N.R.

β. Band orange throughout. Smaller.

*aurivittata cameroni*, Dist. (35–40). S. Mergui Malay Peninsular. Sumatra. R.

γ. Apical spots minute or absent; inner spots 1 and 2 upf in line. Uph and unh plain.

*aurivittata vimana*, Fruh. Borneo.

27a (26). Band hyaline throughout. Uph plain.

27 (28). Upf band very irregular not extending to end cell. spot in 1 against outer half of spot in 2.

*inaequalis*, El. (45–50). The unequal banded Flat. Java, Sumatra, Borneo. (= *sumatranus*, Mab).

28 (27). Band very broad and regular, extending well beyond end cell; inner edge straight, outer edge posteriorly curved. No apical spots.

*ladana*, But. (45–50). The Broad-banded Flat. Borneo, Perak.

*crona*, Hew and *batchianus*, El from Batchian in the Moluccas belong to this group. *editus*, Plotz = *slotharti*. Roth, from New Guinea and Aru constitutes a group by itself. I have been unable to place the following—*mahala*, Fruh, loc? — *clio*, Mab, Formosa—*kiku*, Hering, China.

**1. 18. Achalarus.** The Marbled Flats. (Plate 30).

Above dark brown with white or yellow hyaline discal spots upf in 1, 2, 3, end cell and costa; apical spots in 4, 5, 6–8. Unf apex and all unh grey powdered in patches, leaving more or less obscure irregular large dark spots.

1a (3a). Upf hyaline spot in 3 touching spot in 2.

1 (2). Palpi black below. Antennæ and cilia not chequered. Upf apical spots 6–8 coalesced.

*simplex*, Leech. (46). The Black Marbled Flat. W. China. (= *gener*, Ob).

2 (1). Palpi grey below.

ε. Paler brown. Apex F less produced and termen convex. Spots white.

*bifasciatus casyapa*, M. (45–55). The Marbled Flat. Kashmir to Kumaon. R.

β. Darker. Upf band much broader and yellowish.

* *bifasciatus liliana*, Atk. Assam to Karens. Yunnan. C.

γ. Still darker. Bands quite yellow; spots in 4 and 5 faint.

*bifasciatus aborica* Tyt. Abor Hills. VR.

δ. Upf spot in 3 not to base 3 as in Indian races.

*bifasciatus bifasciatus*, Br. and Gr. N. and W. China (*Contractus*, Leech, Washan and Wa-asu-kow, spots smaller).

3a (1a). Upf spot in 3 quite detached from spot in 2.

3b (5). Upf apical spots 4–8 not conjoined in a curve.

3 (4). Unh black spots prominent and detached. H more rounded than in rest.

*proximus*, Leech. (45). The Grey Marbled Flat. W. China. (= *frater*, Ob, Yunnan).

4 (3). Unh black spots obscure and coalesced.

*nepos*, Ob. (47). The Dusky Marbled Flat. W. China.

5 (3b). Upf apical spots 4–8 conjoined on a curve. Unh black spots more distinct than usual.

*germanus*, Ob (48). The Curved Marbled Flat. W. China.

**I. 19. Satarupa.** The White Flats. (Plate 30).

Dark brown with hyaline spots on F and uph a broad white discal area outwardly bordered by black spots.

(12). Palpi below yellow. Upf spot in cell (may be reduced to a small upper spot) 2 spots in 1, large spots in 2 and 3, dots towards margin in 4 and 5 (may be absent), prominent apical spots in 6–8. Uph cilia white chequered. Abdomen white, black tipped.

α. Upf, no whitish scaling at margin near tornus. Uph white area narrow, ⅓ wing black ; discal spots coalesced to a broad band and only separated from the broad sub-marginal dark band by a shadowy bluish line. Unh detached spots in 6 and outer and inner spots in 7.

*gopala nymphalis* Speyer. (65–70). The Large White Flat. Amur—W. China.

β. Upf usually with whitish submarginal scaling most prominent as a streak on dorsum under discal spot in 1 and 2 spots external to the spot in 1. Uph ⅔ white, postdiscal series of detached black spots separated from the submarginal band by a bluish band. Unf 2 prominent spots in 1 exterior to the discal spots and traces of submarginal spots towards the apex. Unh usually an inner spot in 7 mid 7. Varieties are not infrequent which show a transition to *nymphalis* on uph and unf the submarginal spots may be replaced by a bluish band.

* *gopala gopala*, M. Sikkim to N. Burma. NR. (*zulla* and *splendens*. Tyt, Nagas are aberrations. Possibly good races are *tonkiniana* and *majasra*, Fruh, Tonkin and Formosa respectively).

2 (1). Palpi white below. Upf no spot in cell ; usually single spot in 1 and a spot in 2 just above it, prominent spots in 4 and 5 directed to apex, curved row of apical dots in 5, 6, 7 and sometimes a dot above in 8.

α. Abdomen above white with brown tip. Paler. Upf discal spots large and a broad white streak on dorsum under spot in 1. Uph white area broad, ⅔ wing, black postdiscal spots prominent, against a narrow submarginal band, cilia white chequered. Unh inner spot in 7 near base, outer spot in 7 nearer spot in 6 ; base bluish. Clasp with single lower spine, top flat with an upper spine.

*sambara dohertyi*, Wat. (40–50). The White Flat. Mussoorie to Kumaon. NR.

β. Abdomen above inner ½ white, outer ½ black. Darker. Upf discal spots smaller and only traces of the dorsal streak. Uph ⅓ white, black spots discal and merged with the very broad dark border. Unh base brownish, spots prominent, outer spot in 7 mid spot in 6 and inner spot in 7. Clasp with 2 lower spines ; top pointed and long.

*sambara sambara*, M. Sikkim to Assam. NR. (= *cosima*, Pl. and *indosinica*, Fruh, Tonkin).

γ. Abdomen brown with narrow white rings. Upf as *sambara* ; uph and unh as *dohertyi*, but the black post discal spots lie more on the dark margin and base unh is white. Clasp ? Larger.

*sambara strigata*, Evans. Karens, Dawnas. VR. (fig. in Lep Ind as *kirmana*).

Abdomen brown. Dark. Upf spots small, spot in 1 as 2 dots, spots in 3 and 4 more detached from spot in 2. Uph white area = ⅓ wing. black spots on the dark margin and are postdical as in *dohertyi* and *strigata*. Unh with blue basal suffusion and outer spot in 7 nearer spot in 6. Clasp with single lower spine as in *dohertyi*, but top is rather different.

*sambara affinis*, Druce. Malay Peninsular, Borneo. (= *kirmana*, Plotz and *cognata*, Dist. The above description applies to Malayan specimens ; possibly the Bornean *affinis* is a different race).

η. Abdomen brown. Upf spots narrow and linear ; apical spot in 8. Uph as *sambara*, but white area is broader and pure white. Unh outer spot in 7 mid spot in 6 and inner spot in 7. Clasp very like *sambara*.

*sambara niphates*, Weymer. Sumatra, Nias.

ζ. Abdomen brown. As *affinis*, but white area broader uph. Clasp with single lower and elongated upper spine.

*sambara javanensis*, Fruh, Java.

ε. Abdomen brown. Upf spots pale yellow, 2 spots in 1 and apical spot in 8. Uph entirely dark brown, faint traces of discal spots. Clasp as *dohertyi* but lower spine longer.

*sambara formosana*, Matsum. Formosa.

(This species presents an interesting study in variation and more material is required to decide whether there is more than one species).

**1. 20. Tagiades.** The White Flats. (Plate 30).

Normally dark brown with small hyaline spots F; uph plain or more usually with a white tornal area; unh mostly white.

1a (6a). Upf no hyaline spot in 11 over cell spot. The development of the white spots upf is very variable; the maximum is 2 (or single conjoined) spots in cell, discal spots in 2 and 3, very irregular apical dots in 4, 5, 6–8; the spots rest on a more or less obscure black Y-shaped band, rising from mid v1 and there is a black spot before the middle in 1. Uph more or less obscure black spots in 2, 3 (usually absent), double spot in 4–5 and spot in 6; unh these spots are repeated.

**Atticus Group.**

1 (2a). Uph no trace whatever of white or bluish suffusion on wing or cilia.

α. Comparatively large. Above rather pale brown, outwardly broadly paler; dark markings obscure; discal spots upf well developed, usually no cell spots or spots in 4 and 5. Unf usually with suffused bluish white area at tornus and a smaller area at apex. Unh suffused bluish white usually over the whole wing, except costa, but extent variable; discal black spots in 4-5 and 6 present or absent. Wings rather angular, but dorsum F is comparatively long.

*atticus khasiana*, M. (35–50). The Common Snow Flat. Central Prov. to Bengal, Dun to Tavoy Siam C (= *epicharmus*, Fr).

β. Smaller, darker, more uniform, dark markings prominent and hyaline spots on disc F smaller. Unh pale to dark brown, may be no trace of blue white suffusion or a good deal from base, black spots variable.

*atticus atticus*, F. Tavoy to Malay Peninsular. Pulocondor, Sumatra, Nias. C. (= *ravi*, M; *lugens*, Mab; *utanus*, Plotz; *yotissa*, Fruh. *ravi* was described from Bengal, but the B. M. type is marked Penang, whence it probably came).

γ. Above as *atticus*, but discal spots upf better developed. Unh typically (*helferi*) pure white except for broad brown costa and narrow termen, prominent spots in 4–5 and 6; but may be (*ravina*) plain brown.

*atticus helferi*, Fd. Andamans and Nicobars. NR. (=*ravina*, Fr).

δ. Large dark form with well-developed markings, below variable as *helferi*.

*atticus rajaghra*, Fruh. Borneo. (= *balana* Fr. and *noctis*, El nom nud).

2a (1). Uph tornus or cilia white or at least some traces of blue white suffusion.

2b (5). Upf no spots in cell and usually no discal spots or spots in 4 and 5.

2 (3a). Unh white area at tornus unmarked on termen. Small. Uph narrow pure white tornal area.

*lavata*, But. (40–45). The Scarce Snow Flat. S. Burma to Malay Peninsular, Sumatra and Natuna. ((*albovittata*, M, is the Bornean race). VR.

3a (2). Unh termen before tornus always with spots or a broad line.

3 (4). Uph broad pure white tornal area, bearing 2 or more large brown spots on termen. H distinctly excavated above v4. Apex F and tornus H produced.

α. Large. Uph white area broader, black spots thereon at end vs 4, 3, 2 (largest) and also in ♀ at v1. Upf hyaline spots only at apex in 6–8.

*gana gana*, M. (50–55). The Large Snow Flat. Sikkim to Karens, Cambodia. NR.

β. Rather smaller. Uph white area narrower and no dark spot at end of v4.

*gana menanto*, Plotz. Dawnas to S. Burma and Malay Peninsular, Sumatra, Nias, Java and Borneo. (= *elongata*, and *niasana*, Mab; *avala*, *jainas* and *parra*, Fruh). NR.

Races are *elegans*, Mab = *karea*, Mab, *semperi* and *paceka*, Fr., Philippines; *kowaia*, Plotz (= *bubasus*, Swin, New Guinea and Waigon).

4 (3). Uph usually with bluish white suffusion at tornus; may be reduced to a few scales at base of cilia, may be very broad, may be surmounted by a

**1. 20. Tagiades—Atticus Group**—(*contd.*)

white band, or a narrow white band may be present and the blue scaling absent. A very variable species.

α. Uph narrow white band at tornus, prominently surmounted by bluish scaling, brown dots at ends vs 2, 3 and 4. Upf prominent discal spots in ♀, often traceable as dots in ♂ (usually absent in other races).

**obscurus distans*, M. (45–50). The Suffused Snow Flat. Ceylon. NR.

β. Uph cilia about tornus normally white ; blue suffusion obscure or prominent and may surmount a very narrow white band. Very variable in the Nilgiris.

*obscurus athos*, Plotz. S. India—N. Kanara. Sikkim—N. Burma. NR.

η. Uph cilia normally brown and blue suffusion much reduced. In S. Burma transitions occur to the next form.

*obscurus meetana*. M. Karens to Mergui. Siam and Tonkin. (= *patimoka* and *sangarava*, Fruh). NR.

δ. Uph cilia white ; white band with very little or no blue suffusion and brown spots at end vs 3 and 2. Variable and *athos* forms seem to occur.

*obscurus obscurus*, Mab. Malay Peninsular. Victoria Point, S. Burma. Java. Pulo Laut. Borneo. NR. (= *perakana, jetavana and mahinda*, Fruh).

η. Uph cilia white and with broad blue white suffusion. ♂ apex F produced. Larger than the other races.

*obscurus alica*, M. Andamans and Nicobars. NR.

5. (2b). Upf always one and more often 2 spots in cell, frequently large and conjoined. Cilia white.

*japetus*, Cr. (45–50). Java. C. (This occurs all the way to Australia and the variation is very remarkable ; some 30 names have been assigned to it. Time may show that it is conspecific with *obscurus*).

6a (1a). Upf always a hyaline white spot in 11 over the cell spot. (In the last group the genitalia of all the species are nearly alike ; in this group the differences are very marked).

**Nestus Group.**

Upf cell spots never conjoined : lower cell spot, lower discal spot and sometimes apical spots in 4 and 5 absent. Uph normally broad pure white tornal area, not surmounted by blue scaling, prominent marginal spots and discal spots in 4–5 and 6 usually spot in cell against upper edge and 2 spots in 7. H always slightly excavated above v4.

6b (12). Unf no discal spots in 1.

6 (7a). Uph tornal white area very narrow, only reaching v3 in ♂ and v4 in ♀ ; only ¼ along dorsum. In ♂ uph a small spot end v2 and a larger spot end v1 ; in ♀ increasing spots ends vs 3, 2 and 1. ♂ tornus H much produced. Unh costa dark to v6.

*toba*, DeN. (35–40). The Small Snow Flat ? Khasi Hills (Elwes). S. Burma, Peninsular Siam, Malay Peninsular, Sumatra, Nias, Borneo. R. (= *nana*, Elwes).

7a (6). Uph tornal white area at least to v4 and half way along dorsum.

7 (8a). Uph tornal white area not above v4 or only faintly ; very small spots at ends vs 4, 3, 2 and large spot end v1.

*waterstradti*, Elwes. (35–45). Waterstradt's Snow Flat. Peninsular Siam, Malay Peninsular, N. Borneo and Java. R. (= *tubulus*, Fr. This is var b of Distant's *calligana*).

8a. (7). Uph tornal white area always to v6 or beyond, running behind discal spot in 4–5.

8 (9a). Uph a dark postdiscal spot on the white area in 1 (may be absent) and in 3 against the discal spot in 4–5 ; large increasing spots ends vs 4, 3, 2, 1 and sometimes tornus ; may be blue suffusion between these spots.

*menaka*, M. (35–45). The Spotted Snow Flat. Kashmir to Karens. W. China and Tonkin. C. (= *vulturna*, Plotz and *gavina*, Fruh).

9a (8). Uph no postdiscal spots in 1 and 3.

9b (11). Uph prominent increasing spots ends vs 4, 3, 2 and 1.

9 (10). Unh spot in 4–5 circular.

α. Uph marginal spots separate, no blue suffusion between them.

*litigiosa vajuna*, Fruh. (35–45). The Water Snow Flat. Ceylon. S. India. NR.

**I. 20. Tagiades—Nestus Group.**—(*contd.*)

β. Uph spots usually more contiguous and so ietimes with blue suffusion in between.

* *litigiosa litigiosa*, Mösch. Sikkim to Burma. Andamans. W. China. Siam. Hainan. (= *eson*, Bdv nom nud, *multipunctatus*, Crowley and *cohaerens*, Mab ; *atticus*, Auct nec Fab). NR.

10 (9). Unh spot in 4–5 small, double, much smaller than the corresponding spot uph.

*sumbawana*, Elwes. (35–45). The Sumbawa Snow Flat. Sumbava, Lombok and Flores. R.

11 (9b). Uph only equal spots ends vs 2 and 3 ; no spot end vl and spot end v4 completely conjoined to the apical dark area. H tornus more produced.

*calligana*, But. (35–45). The Malayan Water Flat. Malay Peninsular, Sumatra, Borneo, Nias. NR. (= *yabatha*, Fruh). (*nestus*, Fd, from the Moluccas belongs to this group and differs from the other members in having 2 more or less prominent discal spots in 1 unf ; there are 22 named forms, which represent certainly numerously well defined races and very possibly more than one species).

**I. 21. Abraximorpha.** The Flats.

1 (2). Upf slate brown with numerous white markings, presenting a chequered appearance. Uph white with large slate brown spots. Unh dark markings restricted, veins white. Palpi orange. Antennæ black.

*davidii*, Mab (45–55). The Chequered Flat. S. Shan States, W. and C. China. R. (Race *ermasis*, Fruh, Formosa).

2 (1). Above and below dark brown, base upf, most of uph and all unh clothed olive scales. Upf with hyaline white spots as in *Celænorrhinus*, large spot in cell over origin v3 and opaque costal spot above it, large spot in 2 immediately below, detached smaller spot in 3 and in 1 towards tornus from v1–2, small detached apical dots in 4–8, spot in 6 being midway between spots in 5 and 7. H cilia prominently chequered dark brown and white. Unh there may be a small white spot in cell under origin v6 and a discal spot in 6. Palpi yellow below. Antennæ pale yellow on inside under club.

*chamunda*, M. (45–55). The Olive Flat. Sikkim to S. Shan States. NR.

Though very dissimilar in appearance, the structure and genitalia of these two species are nearly alike.

**I. 22. Odina.** The Flats. (Plate 30).

Orange and black, no hyaline spots.

1 (2). Above orange with black spots on inner half upf and a broad black border bearing a very narrow, highly zigzag ochreous line ; uph with discal and marginal black spots.

**decoratus*, Hew. (35–40). The Zigzag Flat. Sikkim to Burma, Tonkin. (= *bicolor*, Ob). VR.

2 (1). Above orange or yellow with irregularly placed black lines enclosing large patches of the ground colour, the black lines are narrow and the orange areas predominate ; margin black.

* *hieroglyphica ortygia*, DeN. (35–40). The Polygon Flat. Dawnas to S. Burma. VR. (races are—*hieroglyphica*, But, Malay Peninsular, Sumatra, Borneo and Labuan, with broader black lines —*cuneiformis*, Semp, Philippines —*chrysomelaena*, Mab, Celebes).

**I. 23. Mooreana.** The Yellow Flats. (Plate 30).

Above black. Upf with numerous small hyaline white spots including one on costa over cell spot 2 in 1, discal spots in 2 and 3 narrow and oblique, 2 spots in cell and apical series 4–8. Uph with broad yellow tornal area to v5, surmounted by large dark discal spots, separated by pale veins.

α. Uph and unh tornal area deep yellow, continued unh by yellow veins to base.

*trichoneura pralaya*, M. (35–45). The Yellow Flat. Sikkim to N. Burma NR. (=*pellita*, Fruh. Tonkin and Hainan).

**I. 23. Mooreana** —(*contd.*)

β. uph tornal area paler and unh very pale yellow, basal ½ wing being bluish white.

* *trichoneura trichoneura*, Fd. Karens to S. Burma, Malay Peninsular, Sumatra, Nias, Java. NR. (= *nivosa* and *niva*, Fruh).

(Races are—*trichoneuroides*, El, Borneo).

(Species belonging to the group are—*boisduvali*, Mab, Celebes with race *princeps*, Semp=*bazilanus*, Fruh, Philippines. *abstrusus*, Fruh, Dutch New Guinea. *paradoxus*, Fruh, Borneo).

**I. 24. Daimio.** The White Flats. (Plate 30).

Above dark brown. Upf prominent hyaline white spots in 2, 3 and cell, apical dots in 4-8, usually non-hyaline spot in 1. Uph prominent white or yellow discal area, outwardly bordered by dark discal spots lying on or near a broad dark submarginal band and outwardly bordered by an obscure irregular dusky pale line (No. 7 is aberrant).

1a (7). Uph plain brown or with a white or pale yellow central band.

1 (2a). Palpi white below. Cilia prominently white chequered. Upf spot in cell stretches across cell and a detached spot in 11 above it, spot in 1 detached large and sharply defined, apical spots large, conjoined. Uph with a prominent white discal area, spot in cell, base bluish. Abdomen narrowly white ringed.

**Tethys Group.**

*tethys birmana*, Evans. (35-40). The China Flat. N. Shan States. VR. (Races are *tethys*, Men=*lineata*, Mab, Japan and N. China with the uph plain. *moorei*, Mab=*felderi*, But, China, differing from *birmana* in being larger, the white band uph broader with edges not so parallel and the black spots not showing so clearly. *formosana*, Fruh, Formosa).

2a (11). Palpi yellow below. Cilia plain or very faintly chequered. Upf no spots on costa in 11 over cell spot.

**Sinica Group.**

2b (4a). Uph and unh always a prominent black spot at lower edge cell over bases vs 3 and 4 (this spot may be present in *sinica*).

2 (3). Upf spot in cell small=spot in 3, over centre of spot in 2 and against lower edge cell; apical spots 6-8 irregular, separate dots; obscure small diffused spot in 1 against vl. Uph band yellow and very narrow = ½ dark border, cell spot conjoined to dark area. Abdomen brown with very narrow white rings.

*phisara* M. (35-45). The Dusky Yellow-breast Flat. Sikkim to Burma, Perak. NR. (= *expansa*, Mab; race *tenebrosa*, J and T, Hainan).

3 (2). Upf spot in cell large, reaching across cell and tapering towards scv, as large as spot in 2; spot in 1 extends to dorsum. Abdomen outer ½ (⅓ in ♀) brown, with narrow white rings, inner part pale yellow (white in ♀).

α. Upf spot in 1 usually as broad as the spot in 2 and flanked on either side by 2 black spots; apical spots conjoined and inner edges in line; cell spot placed so that its centre is over the inner edge of spot in 2. Uph pale band at least = dark margin, yellow in ♂, white in ♀; spots in cell and 7 detached; veins pale to margin. Variable.

**bhagava bhagava*, M. (35-45). The Common Yellow-breast Flat. Bombay to Central Prov. Sikkim to Burma. NR. (= *milliana*, Swin.).

β. Much darker and markings narrower. Upf apical spots more irregular; inner edge cell spot and spot in 2 in line; spot in 1 against vl. Uph band white and at most = dark margin.

*bhagava andamanica*, W. M. Andamans. NR.

4a (2b). Uph and unh no spot in cell (except individuals of *sinica*). Upf traces of a pale submarginal fascia; spot in cell central over spot in 2; apical ii.

4 (3a). Upf pale spot across 1 extends to dorsum; spot in cell against lower edge. Abdomen in ♂ outer ⅓ brown, rest white; in ♀ brown narrowly white ringed.

**1. 24. Daimio—Sinica Group.**—(*contd.*)

α. Upf cell spot a dot ; spot in 1 usually twice as wide as the spot in 2. Uph band white, twice as wide as dark margin.

*sinica narada*, **M.** (35–40). The White Yellow-breast Flat. Sikkim NR.

β. As last, but upf spot in 1 usually = spot in 2. Uph white band = dark margin, no spots detached, but in ♀ there is very rarely a spot in cell and the spot in 6 is semi-detached.

*sinica indica*, Evans Assam to Tavoy. NR.

γ. Upf cell spot as large as the spot in 2 ; spot in 1 obscure. Uph white band narrow=½ brown margin ; large semi-detached spots in cell and 7.

*sinica sinica*, Fd. C. and W. China. (= *diversa*, Leech and *epitalas*, Ob).

5a (4). Upf white spot in 1 small, against v1 or absent. Uph no spots detached. Abdomen brown, white ringed.

5 (6). Upf cell spot very small, against upper edge and=apical spot, or there may be a very narrow oblique streak across the cell ; ♀ narrow white spot in 1 against v1, extending to dorsum. Above markings all small. Uph ♂ discal band smoky white =½ border and runs from v1 to v6 ; in ♀ white and = border.

*limax dirœ*, Plotz. (35–40). The Malay Yellow-breast Flat. R. Tavoy to S. Burma. Malay Peninsular, Sumatra, Borneo, Nias. (= *minima*, Swin ; *graya*, Stg ; *fumosa*, El ; *formosa*, Swin. Races are *limax*, Plotz = *visana*, Fruh, Java—*corona*, Semp, Philippines).

6 (5). Upf cell spot larger than the spot in 3 and reaches the scv. Uph black margin extends into cell, pale band yellow and = ½ margin.

*celebica*, Fd. (40). Celebes. (= *permena*, Hew and *niviscens*, Fr.).

7 (1a). Uph and unh orange with dark costa and termen ; black postdiscal spots on the orange area and spot end cell. Above black with slatey blue glaze.

**Tabrica Group.**

α. Upf 5 apical spots ; discal spots in 3, 2 and cell very large and conjoined 2 small spots in 1. Uph inner edge dark margin crenulate.

*tabrica tabrica*, Hew. (50–55). The Orange Flat. Darjiling. VR. (? unique).

β. Upf no apical spots. Uph dark margin even, postdiscal spots conjoined to dark border apically.

* *tabrica pinwilli*, But. Assam to Burma, Malay Peninsular, Sumatra, Borneo. VR. (*bowringi*, Joicey and Talbot from Hainan is a very distinct race).

**1. 25. Coladenia.** The Pied Flats. (Plate 30).

Above fulvous, dark brown or grey. Upf with large hyaline white or yellow discal spots. Uph usually with dark spots.

1a (6). Uph dark spots.

1b (4a). Upf dark spot in 1 before middle. Uph in addition to discal series dark spots, there is a spot end cell, base 1 and base 7.

1c (3). Upf costal spot above cell spot confined to 11.

1 (2). Upf in 1 a tawny discal spot followed by a tawny submarginal spot and white cilia. Upf hyaline spots—white. Unh with dark spots.

α. Dark with small markings, cilia H dark brown ; upf apical spots small, separate ; uph dark spots diffused.

*indrani lissa*, **M.** (35–40). The Tricolour Pied Flat. Ceylon. NR. (= *lankœ*, Plotz).

β. Dark brown with large markings and cilia H prominently chequered white. Above and below prominent tawny submarginal spots. Unf apical spots coalesced.

*indrani indra*, Evans. S. India to Bengal. NR.

γ. Tawny brown. Uph black spots sharply marked, tawny submarginal spots faint.

*indrani indrani*, M. Mussoorie to Sikkim. NR.

δ. Above bright ochreous. Upf and below tawny spots very large and prominent. Unh yellow.

* *indrani uposathra*, Fruh. N. Burma to Karens. NR.

**1. 25. Coladenia.**—(*contd.*)

η. Tawny brown ; brighter than *indrani* and larger ; upf and below tawny spots large and prominent. Unh cell and 8 yellow.

*indrani atarana*, Evans. Ataran Valley. VR.

9 (1). Upf single dark or 1 (or 2) hyaline spot in 1 under the discal spot in 2, no tawny submarginal spot. F hyaline spots white in ♀, yellow in ♂. Above dark tawny or fulvous brown. Uph dark spots large and suffused. Unh suffused orange and black spots.

α. Dark and dull. F hyaline spot in cell small, double, upper spot smaller and just joined to the lower spot at its base ; spot in 3 detached.

*dan dan*, Fab. (30-35). The Fulvous Pied Flat. S. India. C.

β. Larger, brighter. F hyaline spot in cell large and usually single ; spot in 3 usually conjoined to cell spot and to spot in 2, nearly to base of cell 3.

* *dan fatih*, Koll. (35-40). Kulu to N. Burma. C.

γ. Small and dark. Upf spot in 3 quite detached and small. Very variable.

*dan dhyana*, Fruh. (25-35). Karens to S. Burma, Siam, Malay Peninsular. C. (Races are—*dea*, Leech, W. China.—*sumatrana*, Fruh, Sumatra—*eacus*, Lat = *dichroa*, Plotz, Java, Bali—*fulvescens*, El, Borneo—*lombokiana* and *sumbawana*, Fruh—*igna*, Semp=*semperi*, El, Philippines— *celebica*, Fruh, Celebes).

3 (1c). Upf costal spot continued to costa. Above grey brown. Uph with prominent dark spots, rather diffused. ♀ paler and spot in 3 fills base 3.

* *laxmi*, DeN. (40–55). The Grey Pied Flat. Sikkim to Burma. Borneo. VR. (= *buchananii*, DeN). (Race *sobrina*, El, Sumatra).

(De Nicéville commenced by correctly describing a ♂ ; later he called this a ♀ and described as the ♂ what I consider to be *Tapena atilia*).

4a (1b). Upf no spot before the middle in 1. Uph and unh no dark spot base 1 and 7. Above dark brown ; spots white upf and costal spot above cell spot confined to 11. Uph black spots sharply defined.

4 (5). Uph cilia in 6 and 7 and at extreme apex upf white. Back of tegumen simple ; clasp lobes equal.

*agni*, DeN. (35). The Brown Pied Flat. Sikkim to Burma, Borneo. VR.

5 (4). Upf and uph cilia uniform. Darker. Unf a pale diffused spot in 1 outside the discal spot. Back of tegumen with a dorsal crest ; upper lobe of clasp small.

*agnioides*, El (35). Elwes' Pied Flat. Sikkim—Assam. VR.

6 (1a). Uph prominent large hyaline spot end cell and a discal series. Above grey. Upf no spot before the middle in 1 and cell spot not to a costa.

*vitrea*, Leech (40). E. Thibet. The Chinese Pied Flat. (= *maeniata*, Ob) VR.

**1. 26. Sarangesa.** The Small Flate. (Plate 30).

Above dark brown, black marbled and with small hyaline spots F ; usually a double or 2 single cell spots and a spot on costa above, spots in 2 and 3 and apical 6–8. Unh a discal row, spot end cell and bases 1 and 7.

1a (3). Unh spots small and white.

1 (2) Cilia H prominently chequered black and white. Upf spots minute or absent. Small.

α. Cilia F obscurely chequered. Upf with minute spots, including spot in 1 before middle and obscure irregular submarginal row, more prominent unf. Uph traces of small pale spots. Unh very prominent minute dots.

*sati sati*, DeN. (25–30). The Tiny Flat. Cutch to Central Prov. NR.

β. Cilia F and H prominently chequered. Above inky black, frosted sparse white scales, no spots. Below traces of spots.

* *sati hopkinsi*, Evans. Madras, Bangalore. R.

2 (1). Cilia very obscurely chequered. Upf single spot across cell, spot in 2 comparatively large and quadrate, 2 dots in 1. Unf obscure irregular submarginal spots. Unh small white spots. Uph obscure large dark spots.

*purendra*, M. (30–35). The Spotted Small Flat. N. Kanara, Bombay to Sind and Central Prov. Kangra to Kumaon. NR.

3 (1a). Unh with dark spots which are obscurely traceable uph.

α. Unh dorsal ½ including cilia white with sharply defined small spots, 2 in 1, one in each 2 and 3, large spot in 4-5. Upf spots minute, 2 dots in cell and dot on costa above them.

**I. 26. Sarangesa**—(*contd.*)

* *dasahara albicilia*, M. (30-35). The Common Small Flat. Ceylon. C. (= *sezendis*, Plotz).

β. Unh grey brown with large diffused dark spots. Upf very variable, may be single spot across cell or 2 dots ; discal dots in 2 and 3 present or absent. Uph cilia white.

*dasahara davidsoni*, Swin. S. India to Bombay. (= *hampsoni*, Swin). NR.

γ. As last, cilia brown, sometimes whitish.

*dasahara dasahara*, M. Central Prov. Kangra to Burma. Siam, Tonkin. C.

**I. 27. Darpa.** The Angles.

Above black with small hyaline spots upf. 1 or 2 in cell, may be 2 in 1, discal in 2 and 3, apical 4, 5 (may be absent) and 6-8. Uph broad pale tornal area, surmounted by a row of large black discal spots, separated by pale veins. Unh mostly pale, small discal dark spots 1-3, large 4-5, 2 spots in 7, spots upper edge cell. H produced and tornal cilia elongate. Palpi with loose brown and white or yellow scales.

1 (2a). Termen F and H highly crenulate ; H angled at v3 and v7. Upf with bands of white scaling ; cell spot across cell reaching v12 and continued along mv to a small spot near base 2, apical spots 6-8 conjoined and in a straight line. Uph tornal area pale yellow, extending to v5 and bearing small black spots ends vs 2 and 3 ; vs 6 and 7 pale to margin. H. tornal ¼ clothed long hairs.

*hanria*, M. (35-40). The Hairy Angle. Mussoorie to Assam. R.

2a(1). Termen F and H comparatively even. H only angled at v4. Upf spots normal, no spot on costa over cell spot, apical spots 6-8 separate and irregular. Uph tornal area pure white.

2(3). Uph and unh 2 small spots on white area ends vs 2 and 3. Uph white area to mid vs 3 and 4. Palpi below brown and white.

*striata*, Druce. (35-40). The Striated Angle. Assam to Burma, Malay Peninsular, Sumatra, Borneo. R. (=*dimidiata*, Fr.).

3(2). Uph and unh no spots on white tornal area, which extends to v4. Palpi yellow and brown below.

*pteria*, Hew. (35-40). The Snowy Angle. S. Burma, Malay Peninsular, Borneo, Philippines. R. (=*dealbata*, Dist).

**I. 28. Tapena.** The Angles. (Plate 31).

1 (2). Above nearly black in ♂, brown in ♀. Uph an upper hyaline spot in cell between origins vs 6 and 7. Upf dark diffused central Y band, black spot near base cell, base 1 and near tornus, 2 or 3 hyaline apical dots. Uph narrow dark discal band and dark spot base 1, mid and base 7. ♀ upf dark markings faint ; separate hyaline spots cell, 2, 3 and dot in 1.

α. Large. Upf only 2 apical spots.

* *thwaitesi thwaitesi*, M. (40-45). The Black Angle. Ceylon. R.

β. Small and dark. Upf 3 apical spots. Paler.

*thwaitesi hampsoni*, E1. (30-35). S. India. R.

γ. Small . Upf usually with 3 prominent apical spots.

*thwaitesi minuscula*, E1. (30-35). Assam to S. Burma, Malay Peninsular. Sumatra. Borneo VR.

2(1). Above grey brown. Uph no hyaline spot, a central and discal dark band. Upf hyaline spots as in *Coladenia laxmi*, but costal spot in 11 not to costa. Unh black spots as in *laxmi*.

*atilia*, Mab. (40). Perak, Borneo, Philippines, Celebes. VR.

(= *palawana*, Stg. Described by De Nicéville as ♂ *laxmi* in B. N. H. S. 1891).

**I. 30. Ctenoptilum.** The Tawny Angles. (Plate 31).

Above ochreous brown. Upf and unh with white hyaline spots crowded together in the middle. Upf large spot across cell and 2 spots on the costa above it, also bar end cell, 2 spots in 1, large discal spot in 2 under cell spot and sometimes a dot base 2, small spot in 3, dots in 4 and 5, apical spots 6-8 ; dark band beyond spots. Uph spots numerous and crowded.

**I. 30. Ctenoptilum**—(*contd.*)

1(2). Upf hyaline spots large at apex, spot in 7 elongated and much longer than the spots on either sides ; a spot base 2. Bright ochreous brown above.

* *vasava*, M. (35–40). The Tawny Angle. Mussoorie to Burma NR. (*chinensis*, El, is the larger, brighter race from W. China).

2(1). Upf apical hyaline spots 6–8 smaller and of equal size ; no spot base 2. Below prominently frosted white scales.

* *multiguttata*, DeN. (35-40) The Multispot Angle. Manipur to Burma. R.

**I. 31. Odontoptilum.** The Angles (Plate 31).

Above chestnut brown. Upf with hyaline white spots, but discal spots small or absent. Uph with white lines. Unh mostly white with some dark markings at tornus and costa.

1(2) Upf no white lines ; inner ⅓ pale brown outer ⅓ bright chestnut ; broad dark chestnut band before middle between v1 and scv and a similar postdiscal band ; discal white crescentic spot in 2 and dot in 3 ; prominent apical spots in 7 and 8 and may be a dot in 6. Uph pale brown and apex dark chestnut ; straight narrow white sub-basal white line, similar postdiscal irregular line, submarginal and marginal lines ; clothing of whitish hairs about dorsum and tornus.

* *angulata*, Fd. (40-45). The Chestnut Angle. S. India. Kulu to Burma. S. China, Malay Peninsular, Siam, Sumatra, Java, Borneo, Lombok, Sumbawa, Philippines. NR. (= *sura*, M ; *sumatrana*, *mahabini*, *subangulata* and *hyperides*, Fruh ; *helisa* Semp ; *hypecides*, Doh ; *kuki*, Tyt-Bing MS—is an aberration. The Celebes race is *helias*, Fd).

2(1). Upf with white lines ; a line extreme base continued on H ; a short obscure line under origin of v2 ; a central line from costa across H to the white dorsum ; a discal line from v3 to dorsum and continued as a highly irregular line on H ; apical hyaline spots small, may be hyaline dot in 3 : H cilia white. Above dark chestnut. Upf rather obscure submarginal band of white scaling. Uph termen narrowly white, followed by a dusky band and then a broad irregular white band obscurely crossed by dark veins. Unh white to v7, faint dark tornal spots.

* *pygela*, Hew. (35–40). The Banded Angle. Karens to S. Burma, Malay Peninsular, Sumatra, Nias, Java, Banka, Borneo. R. ( = *ragupta* and *javanica*, Fruh. *leptogramma*, Hew replaces this species on the Philippines).

**I. 32. Caprona.** The Angles (Plate 31).

Uph with hyaline spots ; across cell (may be divided in 2 and upper part may be absent) ; large discal spot in 2 and small spot in 3 ; apical spots 6–8 (also sometimes in 4 and 5, usually so in ♀).

1 (2). Upf no prominent pale crescentic bar base cell ; usually 2 (or one lower) hyaline discal spot in 1.

α. WSF—Upf dark brown with a more or less prominent central and submarginal ochreous area from costa to dorsum ; uph a central golden to dusky ochreous central band divided by dark veins and outwardly flanked by conjoined dark spots ; a broad dark ashy border from dorsum to v4. Unh white with basal, discal and submarginal rows of dark spots, cilia dark brown.

DSF—Dark brown with numerous dark ochereous spots, exactly as in *agama* but not so well defined and discal spots in 1 are hyaline. unh as WSF. but all spots very small ; submarginal spots form dusky continuous band. Cilia very prominently chequered brown and white.

*ransonnettii ransonnetti*, Fd. (35-45). The Golden Angle. Ceylon. NR. (DSF. R, figured by Ormiston as *siamica*.

β. WSF as last. DSF very variable. Normally bright ochreous above upf dark sub-basal band and hyaline spot near base cell (may be a dark spot) ; broad dark band outside discal spots and separate band outside apical spots ; dusky sub-marginal band. Uph sub-basal, discal and snbmarginal row of dark spots (latter often absent). Below paler ochreous, more or less frosted white scales. Cilia whitish, faintly chequered. Above may be dark ochreous brown with the dark markings obscured and below the frosting may completely obscure the dark markings ; there are to be found transitional forms to the Ceylon DSF. to the WSF and to the race *alida*.

**I. 32. Caprona**—(*contd.*)

* ***ransonnettii potiphera***, Hew. S. India to Central Prov., Punjab, Kumaon to Assam. NR. ( = ***saraya***, Doh and ***taylorii***, DeN., ***hamiltoni***, DeN, for which Mabille erected the genus *Gerosis*, is an aberration from Assam with the grey scaling above covering the whole wing, except for a dark central band upf and dark discal spots uph).

γ. A single variable form generally resembling the DSF of the preceding race, but typically much darker brown above, with very obscure dark markings. Below much whiter, due to intense frosting, but dark diffused spots unh show clearly.

* ***ransonnettii alida***, DeN. Assam to Dawnas. NR. (***siamica***, Swin, from the Siam Shan States is a large bright ***agama***-like form, very like the Ceylon DSF = probably ***mettasuta***, Fr. ***erosula***, Fd = ***pelligera***, Fruh, is the Celebes race).

2 (1). Above dark brown with numerous pale yellow spots in addition to the hyaline spots ; prominent crescentic pale bar end cell ; discal spots in 1 non-hyaline. Upf prominent row of postdiscal and submarginal pale spots ; central spot in cell, base 2 and in 1 below it ; spot in 11 over hyaline cell spot. Uph large pale spot in cell, discal, postdiscal and submarginal rows of pale spots. Unh white or pale yellow with prominent black spots as in ***ransonnettii***.

* ***agama***, M. (30–50). The Spotted Angle S. India to Mussoorie and Burma. Siam, Tonkin, Java, Bali ( = ***syrichthus***. Fd ; ***danæ***, Pl ; ***pelias***, Fruh ; ***parvo-punctata***, Mab Moore's name is usually disregarded since he did not describe the imago, but as he described the larva and pupa, under the international rules his name has priority).

var. ***elwesi***, Watson. (30–35). Constantly smaller ; upf the spot before the middle in 1 is double and uph the discal row of spots is incomplete ; only a spot end cell and mid cell, no inner spot in 7 and 1. The genitalia are as in ***agama***. Assam to Shan States. R.

**I. 33. Gomalia.** The African Marbled Skipper. (Plate 31).

Above olive brown with greenish hairs. Upf a narrow black band before the middle from v1 to scv ; semi-hyaline small spots across cell, discal in 2 and 3 and apical in 6–8. Uph a regular central white band from v1 to v7 and an obscure submarginal pale band. Below rather pale brown, white markings more extensive ; unf dorsum pale ; unh spot near base cell and base 7, discal band to v8.

* ***elma albofasciata***, M. (25). Ceylon. S. India to Poona. Sind. Baluchistan. ? Kangra. R. (= ***litoralis***, Swin).

**I. 34. Hesperia.** The Skippers. (Plate 31).

Above dark brown or green with numerous white semi-hyaline spots F and H. Unh basal, central and submarginal white bands. Upf normal spotting—spot across cell at or beyond middle (sometimes one or two streaks on costa above it) ; discal spots in 2 and 3 and may be 1 or 2 spots in 1 ; apical 6–8 and usually in 4 and 5 ; in addition there may be a spot near base cell, a spot or streak at end cell, spot before the middle in 1 and rarely a spot above it at base 2, also a row of tiny submarginal spots. Unh pattern very variable ; normally a spot base cell and usually a spot on either side at bases 1 and 7 ; continuous discal row 1–7 running through large spot end cell in 4–5 ; submarginal row small irregular spots ; the spots from below appear more or less uph.

1a (11a). Upf apical spots 4, 5 absent, or if present in continuation of spots in 6–8 ; more or less prominent row of small submarginal spots. Antennæ club nearly straight or bent beyond middle. ♂ no tuft on hind tibia.

1b (6a). Upf spot about mid cell well behind origin of v3 and the discal spot in 2 ; spots in 1 consist of a spot under the spot in 2 and a short streak behind, along v1. Uph never a discal spot in 7. ♂ no costal fold.

**Sao Group.**

1c (3a). Unh inner spot in 7 placed immediately over the spot base cell and is continued to costa ; outer spot in 7 in line with spot base 6 and end cell, thus forming a regular basal and central band. Upf prominent spot end cell. Unh greenish brown.

**1. 34. Hesperia—Sao Group**—(*contd.*)

1 (2) Unh submarginal spots separate. Upf marginal spots prominent; a spot base cell, making 3 cell spots. Uph usually a spot base cell.

******galba*, F. (25). The Indian Skipper. Ceylon. S. India to Karachi, India generally to Shan States. (=*superna*, M). C.

2 (1). Unh submarginal spots conjoined to a band, making 3 parallel bands. Upf submarginal spots faint and only show in middle. Upf and uph no spot base cell. Tegumen divided at tip instead of pointed as in *galba*.

*zebra*, But. (25). The Zebra Skipper. N. Punjab. R. (=*hellas*, DeN).

3a (1c). Unh inner spot in 7 placed midway between spot base cell and end cell and is continued to costa; outer spot in 7 near margin.

3b (5). Upf prominent spot end cell and usually a spot base cell upf and uph.

3 (4). Upf discal spot in 2 continued full width across 1 to v1 and a pale streak in 1 behind it.

α. Larger. F termen more rounded. Unh greenish brown and spot in 7 nearer spot end cell. Unf apex mostly white, obscuring the submarginal spots.

*phlomidis phlomidis*. H. S. (33). The Persian Skipper. Turkey to Persia. NR. (*amenophis*, Rev. is the race from near Cairo).

β. Smaller. Upf and unh markings wider. Unh yellow brown.

*phlomidis geron*, Watson. (30). W. Persia and Baluchistan. R.

4 (3). Upf discal spot in 2 just entering 1. Above exactly as *galba*. Unh greenish brown. Clasp as *sao*.

*evanidus*, But. (25). The Sind Skipper. Arabia and Sind. R. (?= *adenensis*, But).

5 (3b). Upf only a faint line end cell and no spots base cell. Darker. Unh brick red, spots white. Above discal and apical spots prominent; submarginal spots faint.

*sao lugens*, Stg. (30). The Brick Skipper. Chitral, Ferghana, NR at 12,000 feet. (*sao*, Berg. occurs from Europe to the Amur and there are a number of named races and varieties *orbifer*, Hub, is one of the races).

6a (1b). Upf spot about mid cell nearer end cell, over origin of v3 and usually over the discal spot in 2; usually single spot across cell or double, one above the other; only traces of spot base cell upf, but present uph; upf only faint line end cell. ♂ upf costal fold more or less developed.

**Proto Group.**

6b (9a). Unh large white spot mid 7 over origin v6 in continuation of spots end cell and base 6, continued to costa and no spot in 7 interior to this spot, but there is an outer spot near margin. Above submarginal spots prominent and uph with discal spots in 7.

6c (8). Upf 2 spots in 1 between the discal and submarginal spots. Unh submarginal spots nearer the margin.

6 (7). Uph rather dark green. ♂ H tibiæ spinose.

*cribrellum*, Evers. (34). The Spinose Skipper. S. Russia to Turkestan and Amur. (= *hybrida*, Mab).

7 (6). Unh orange with broad white markings or better described as white with central and postdiscal black edged, orange bands, H tibiæ clothed, not spinose. Above markings large and prominent.

*antonia gigantea*, Stg. (40). The Large Orange Skipper. Ferghana, C. Asia. (*antonia*, Speyer, flies from Turkestan to the Amur and is rather smaller).

8 (6a). Upf no spots in 1 between the discal and submarginal spots. Unh yellow green to dark green, submarginal spots not so near to the margin.

*tessellum*, Hub (35). The Tesselated Skipper. Russia to the Amur. (There are several named races, etc.; *nomas*, Led, appears to be conspecific).

9a (6b). Unh spots in 7 smaller and not continued to costa. Above submarginal spots faint.

9 (10). Unh white spot in 7 in continuation of the spots at end cell and base 6 and an inner spot in 7 over spot base cell. Unh red brown to pale brown. Uph spot in 7 present or absent. Upf spot in 2 more or less under the cell spot.

*proto*, Esp. (35). The Proto Skipper. Algeria. Spain to Persia and Turkestan. (There are several named races, etc. The C. Asia race is *staudingeri*, Speyer and the Persian *plurimacula*, Christoph).

**I. 34. Hesperia—Proto Group—**(*contd.*)

10 (9). Unh a white spot in 7 on either side of the spot base 6 ; inner spot far from spot base cell. Unh greenish brown or yellow green. Upf usually 2 spots in 1 between the discal and submarginal spots.

*poggei*, Led. (35). The Syrian Skipper. Syria to Baluchistan and C. Asia. R. (= *lutulentus*, and *fucata*, Mab ; *nobilis*. Stg).

11a (1a). Upf always a spot in 5 and usually in 4 : these spots are shifted out well beyond the apical spots in 6-8. Upf submarginal spots usually absent but may be faint or incomplete. Upf and uph no spot base cell and usually only a faint streak end cell. ♂ with costal fold (except *alpina*) and a tuft on the hind tibiæ.

11b (17a). Unh extreme base 7 dark ; always a pale spot in 7 near base and a spot over the spot end cell ; spots do not reach the costa, but entire costa may be pale.

11 (12a). Upf a spot end cell and before the middle in 1, more sharply defined than the other spots ; spot mid cell well behind the origin of v3 ; 2 equal white streaks one above the other over the cell spot. Unh spot near base 7 small circular, not, or only just, touching the scv ; origin v6 nearer outer than inner spot in 7 ; upper edge of spot in 5 produced into cell ; submarginal spots irregular. Uph spots sharply defined and usually a spot in 7 and submarginal spots. Tegumen with horns near the base and clasp without the vertical spine characteristic of the *sidæ* group.

**Malvæ Group.**

Unh dark ochreous brown with small well defined spots ; dorsum dark brown. Tegumen bipartite.

*malvæ*, L. (25). The Grizzly Skipper. Europe to Amur. China. (Several races, etc., have been named ; the Chinese race is *schansiensis*, Reverdin). (Other species in the group are *malvoides*, El, S. Europe and *melotis*, Dupon = *hypoleucus*, Led, Syria and Palestine).

12a (11). Upf spot end cell and before middle in 1 never so sharply defined as the rest of the spots and often one or both are absent. Unh inner spot in 7 always reaches scv and is never circular.

**Sidæ Group.**

12b (14a). Unh upper edge of spot in 5 continued into cell more or less markedly ; inner edge spots 4-5, base 6 and mid 7 not in line.

12 (13). Unh spots at bases cell and 7 do not overlap. Unh spots in 1 and 2 very enlarged and directed to the spot end cell. Upf a double streak on costa immediately over the cell spot ; discal spot in 2 nearer cell spot than the spot in 3. Above very dark with prominent spots. Unh dark ochreous brown or greenish with very broad white markings.

α. Uph prominent pale markings on disc and about tornus.

* *alpina alpina*, Ersch. (25-30). The Mountain Skipper. Turkestan. Chitral to Kashmir, 10,000 feet. NR. (=*darwazica*, Groum).

β. Uph often unmarked or markings very reduced.

*alpina cashmirensis*, M. Kashmir. 10,000 feet. NR.

(Allied species are—*cacaliæ*, Ramb, Mountains of Europe and Altai—*andromedæ*, Wallgr, Norway and Alps—*centaureæ*, Ramb, = ? *conyzæ*, Guen, N. Europe and N. America—*freija*, Warren, Circumpolar).

13 (12). Unh the spots base 7 and base cell overlap. Uph the submarginal spots very regular and on unh lie against a pale submarginal band. Unh with conspicuous orange or yellow, black edged, bands, recalling *antonia*.

*sidæ*, Esp. (30-35). The Orange Skipper. C. and S. Europe to Asia Minor and Turkestan. (The Turkestan race is *struwei*, Pungeler). (Allied species are—*carthami*, Hub, N. and C. Europe to W. Asia—*onopordi*, Ramb, S. Europe and N. Africa).

14a (12b). Unh upper edge of spot in 5 not entering cell ; inner edges of spots end cell, base 6 and mid cell in a straight line.

14 (15a). Upf spot near base 1 large, across 1 and an elongated spot at base 2 above it ; discal spots in 2 and 3 overlap. Unh yellow green, spots faint, but with spots at bases 2 and 3 ; submarginal spots in 3 and 6 faint ; upper edge spot in 5 continued along v6 towards termen. Unf black.

*cinaræ*, Ramb. (35). The Eastern Skipper. S. Russia to Asia Minor and Turkestan.

**1. 34. Hesperia—Sidæ Group**—(*contd.*)

15a (14). Upf at most a small spot before mid 1 and no spot base 2; discal spots in 2 and 3 not overlapping. Unh always spots at base 2 and 3.

15 (16). Unh upper edge of spot in 5 continued along v6 towards margin; outer edges of spot base cell and 7 in line; submarginal spot in 2 midway between basal and submarginal spot in 3.

*alveus*. Hub. (35). The Alveus Skipper. S. and C. Europe to Amur and W. China. (The W. China race is *sifanicus*, Groum).

(Allied species are—*carlinæ*, Ramb, mountains of Europe with race *speyeri*, Stg. from the Amur—*armoricanus*, Ob, France to Turkey—*foulquieri*, Ob, France to Italy).

16 (15). Unh upper edge of spot in 5 not continued along v6; outer edge spot base cell against middle of spot in 7.

*serratulæ*, Ramb. (35). The Northern Skipper. Europe to Syria and Turkestan. (The Turkestan race is *major*, Stg. and the Syrian race *alveoides*, Stg).

17a (11b). Unh extreme base cell 7 white, forming part of a basal white band. Upf a spot in cell behind the origin of v3; usually a prominent spot base 2 and below it in 4.

**Maculatus Group.**

17b (19a). Unh a Y-shaped basal ferruginous band from v1 across cell, the right stalk to the costa, left to v8, stalks separated by the subbasal white spot in 7.

17 (18). Unf black. Unh central white band, very irregular large spot in 1, small spot base 2, none base 3, spot in 4-5 large and quadrate, spot base 6 absent, spot in 7 large and expanding to the white costa; ferruginous postdiscal band and submarginal spots very irregular, submarginal spot enlarged in 1 and 2.

*bieti*, Ob. (30). The Chinese Skipper. W. China and E. Thibet.

18 (17). Unh central white band of equal width, except for the spot in 5, which is expanded inwards and outwards; ferruginous postdiscal band also regular and followed by a pale brown broad marginal band, with small irregular spots on its inner edge. Unf overlaid white scales. Apex F produced and margin straight.

*oberthuri*, Leech. (25-30). The Thibetan Skipper. Chumbi Valley, E. Thibet, W. China and Yunnan. R. (= *delavayi*, Ob).

19a (17b). Unh a roughly oval-shaped ferruginous band (sub-basal), enclosing a small white spot in 7 (may be absent). Unf black, apex prominent ferruginous (may be overlaid white scales). Unh narrow silver white discal band, expanding to large white patch on the costa.

19 (20). Uph only central white spots (often obscure). Above cilia dark, only faintly chequered. Upf spots in 4 and 5 very small and separate. Unh beyond discal band pale brown with dark ferruginous central band. Very variable.

*zona*, Mab. (30). The Japan Skipper. Japan to W. China. (= *sinicus*, But and *albistriga*, Mab).

20 (19). Uph with prominent discal and submarginal spots. Above cilia prominently chequered. Upf spots in 4 and 5 usually conjoined. Uph discal spots end in a very broad white costal spot.

α. Unh dark and uniform; discal pale band very narrow and beyond uniform dark.

*maculatus maculatus*, Br. and Gr. (30). The Maculate Skipper. Japan to W. China. (= *amurensis*, Stg.).

β. Unh much paler; sub-basal ferruginous band sharply marked; beyond the silver discal band pale ochreous brown and a second silver postdiscal band thereon. Unf apex may be white scaled.

*maculatus thibetanus*, Ob. E. Thibet and W. China.

**1. 35. Carcharodus.** The Marbled Skippers. (Plate 31).

Above greenish brown; upf paler with a broad dark band before the middle and a similar postdiscal band; hyaline white spots in cell, discal in 2 and 3, apical in 6-8; uph uniformly dark with rather obscure small pale spots in cell

1. 35. **Carcharodus**—(*contd.*)

and discal and submarginal rows. Unh marked as in *Hesperia*; in 7 a pale spot on either side of the discal band; ground colour yellow brown.

1a (3a). ♂ unf a tuft of hairs from near base vl on dorsum.

1 (2). Upf and Unh spots comparatively large and diffused. Unh dark area between discal and submarginal pale bands narrower than the discal band. Below paler, greenish grey.

*altheæ dravira*, M. (35). The Tufted Marble Skipper. Baluchistan to Chitral and Kashmir. R. (*altheæ*, Hub. occurs typically in C. and S. Europe with race *orientalis*, Reverdin flying from Turkey to W. Asia).

2 (1). Upf and unh spots small and sharply defined; unh dark area between the pale bands broader than the discal band. Smaller and lighter.

*bæticus*, Ramb. (35). The Southern Marble Skipper. S. Europe to Syria. (= *marrubii*, HS.).

3a (1a). ♂ unf no tuft. Above and below spots smaller. Above browner with more or less violet reflections.

3 (4). Upf spot in 2 wider than high.

*lavatheræ*. Esp. (30). The European Marble Skipper. S. Europe to Asia Minor. (= *australior*, Ver).

4 (3). Upf spot in 2 higher than wide.

* *alceæ swinhœi*, Watson. (30). The Plain Marble Skipper. Baluchistan to Chitral and Kashmir. C. (*alceæ*, Esp., flies from C. and S. Europe to W. and C. Asia and there are several named races or varieties).

1. 36. **Nisoniades.** The Dingy Skippers. (Plate 31).

Above dark brown, marbled on F with ashy bands; no hyaline spots other than the apical spots in 6–8, which may be absent. Cilia dusky.

1a (3). ♂ with a costal fold. Uph with postdiscal and terminal pale spots.

1 (2). Upf no terminal pale spots. Uph spots yellow, comparatively large and prominent; a spot end cell. Unf a yellow spot end cell and postdiscal and terminal spots.

α. Large. Upf yellow postdiscal spots suffused, irregular. Upf ashy, central band broad = width of space 2.

*montanus montanus*, Br. (40). The Yellow Dingy Skipper. Japan to C. China (= *rusticanus*, But).

β. Small. Unf pale postdiscal spots regular, well defined. Upf ashy central band narrow = ½ width space 2.

*montanus nigrescens*, Leech. (35). W. China and E. Thibet (= *leechi*, El).

2 (1). Upf with small terminal spots. Uph spots small, whitish and obscure. Unf outwardly paler and spotless. Below pale brown.

*tages*, L. (30). The Dingy Skipper. Europe to Amur. (= *cervantes*, Gras; *popoviana*, Nord; *sinina*, Groum; *unicolor*, Frey; *clarus*, Conrad; *subclarus*, Ver).

3 (1a). ♂ no costal fold. Upf and uph unmarked except for the ashy bands and apical spots.

α. Inky black, very uniform; apical spots prominent.

* *marloyi marloyi*, Bdv (30). The Inky Skipper. S. E. Europe to Persia, Turkestan and Chitral. NR. (= *sericea*, Frey and *rustan*, Koll.)

β. Larger, paler, upf with the ashy bands better marked and the apical spits faint. Unh with traces of postdiscal spots. Cilia greyer.

*marloyi, pelias*, (35). W. China and E. Thibet. (= *erebus* Groum).

1. 47. **Carterocephalus.** The Mountain Hoppers. (Plate 31.). Above with prominent white or yellow spots on both wings (or yellow with black spots). Unh prominent yellow or silver markings.

1a (4a). Unh with yellow spots; no spot in 8. Upf and Uph black with large yellow spots or yellow with black spots. Cilia ochreous.

**Group.**

1b (3). Uph always with a yellow submarginal spot in 6 in addition the large yellow spots in and end cell and discal in 2 and 1.

**1. 47. Carterocephalus—Palæmon Group—(contd.)**

1 (2). Upf veins black on the yellow area. Upf dark brown with large yellow spots, 2 in cell, base 2, discal in 1–4, small detached spots 4 and 5, conjoined apical in 6–8, complete marginal series. Unf mostly yellow, black veins at margin. Unh ochreous, spots black edged, veins black at margin; additional large spot in 7.

*palæmon*, Pallas (30). The European Hopper. Europe to Amur and N. America. (= *paniscus*, F.; *brontes*, Schiff).

2 (1). Upf and margins below veins not black (slightly so in some races of *silvius*).

α. ♂ upf yellow with black spots, mid cell, end cell, near base 2 and a dash mid 1 also a submarginal row. Unh as *palæmon*, but ground colour is brown; uph all spots show but except for the dorsum the wing is overlaid yellow, obscuring all but the submarginal spots and spots in 1 and 7. ♀ dark brown with spots as *palæmon*, but larger: discal series forms a continuous band confluent with the spots in 4 and 5 and the apical spots; submarginal spots small. Uph with a spot in 8.

*silvius silvius*, Knoch (30). The Northern Hopper. N. Europe to Amur.

β. ♂ upf much redder ochreous, black spots larger, inner edge spot end cell continued to costa; submarginal spots much enlarged (except 4 and 5) and reach termen. Uph spots less rounded. ♀ as *silvius*, but spots reduced, discal spots not joined to the spots in 4 and 5; submarginal spots F absent, on H absent or incomplete. Unh ♂ ♀ appearing very different, yellow spots square and conjoined, wing appearing entirely yellow with small brown spots.

*silvius houangty*, Ob. W. China.

γ. ♂ upf reddish ochreous, black spots very large; spot mid cell conjoined to inner edge of spot in 2, which reaches dorsum; submarginal spots large, conjoined and merged to the dark termen, except for a single spot at the apex; dorsum narrowly dark Uph dark brown with yellow spots as in the ♀. but with traces of submarginal spots and a spot in 7. ♀ upf spots still more reduced, sub-basal yellow band mid cell to vl, discal band vl–v4 meeting outer edge of large spot before end cell, small detached streaks in 4 and 5, apical conjoined spots 6–8; uph no submarginal spots or spot in 7, only discal in 1 and 2, large discal spots in cell, 2, 4–5 and submarginal spot in 6. Unh overlaid greenish ochreous with usual black spotting.

*silvius shoaka*, Evans. S. E. Thibet. Bhutan at 10,000 feet. R.

3 (1b). Uph no yellow submarginal spot in 6; 3 large spots, mid cell, 2 and 4–5, small spot in 1. Upf orange costal streak from base, large spot from base 2 to vl, discal in 1–3, before end cell to costa, in 4–5 near margin, apical in 6–8. Unh shining greenish ashy, spots as above and a spot mid 7.

*abax*, Ob. (30). The Yellow Thibet Hopper. W. China and E. Thibet.

4a (1a). Unh spots silver. Cilia ashy grey or white.

**Argyrostigma Group.**

4 (5a). Unh ochreous, outwardly with ferruginous patches, no pale spot in 7; silver streak from near base cell to near termen in 5, large spot mid 1, small spot in 2, submarginal band 1–5 and large submarginal spot in 6. Above dark brown with pale yellow spots arranged as in *Taractrocera mævius*; spot at base 2 to vl, discal row 1–5, apical 6–8, spot before end cell and streak on costa above it. Uph discal spots in 2 and 4–5 submarginal row 1–4 and large submarginal spot in 6.

*pulchra*, Leech (25). The Beautiful Mountain Hopper. W. China and N. E. Thibet. (= *ops*, Grcum).

5a (4). Unh always a silver spot mid 7, continued by a pale or silver spot to costa (in *avanti* spot in small and costa pale).

5 (6a). Upf dark brown with large yellow spots, yellow areas = dark areas; spot near base cell continued to base 2 and vl, spot before mid cell continued to costa; discal band 1–3, subapical band 4–8, streak at apex. Unh ferruginous.

α. Upf with basal costal yellow streak; discal band not joined to apical or cell spots. Uph yellow spot mid cell, discal band 1–6, large submarginal spots in 3 and 6, small in 2, 5 and 7. Unh silver spots arranged as the yellow spots above, but an additional large spot mid 7, continued to costa by a yellow spot.

**I. 47. Carterocephalus--Argyrostigma Group**—(*contd.*)

*argyrostigma argyrostigma*, Evers. (25-30). The Orange and Silver Hopper. Amur, Altai, Mongolia ; Tatung Mts. and Amdo, E. Thibet.

β. Upf spots yellow white ; a spot base costa, discal band of 4 conjoined spots, double apical spot. Uph large central yellow spot and two beyond. Unh as last.

*argyrostigma montana*, South. Litang, 14,000 feet.

γ. Upf spots orange and very large ; as *argyrostigma*, but no costal streak, discal band conjoined to subapical and to spot near end cell. Uph single very large orange spot and a submarginal dash in 5. Unh silver spots as the yellow ones above, but no submarginal spots and with a small spot mid 7 and cell.

*argyrostigma avanti*, DeN. Chumbi Valley and Kumaon, 12,000 ft. V&R.

6a (5). Above pale spots small, dark areas predominate. Uph at most 2 discal spots, no submarginal spots. Spots usually white.

6 (7a). Upf white spot in 2 far from spot in cell, midway between it and termen ; usually 2 small spots in 1, under spot in 2 and a small spot in 3 ; conjoined spots 4–5 and 6–8 ; apex white. Unf white bar end cell, marginal spots at apex in 6 and 7. Unh dark ferruginous ; silver spot mid cell, silver central band 1–8 and submarginal band 2–7 (spots in 3 and 6 enlarged), may be discontinuous.

α. Unh inner edge discal band regular.

* *dieckmanni dieckmanni*, Graeser. (25-30). The Silver Mountain Hopper. W. China, E. Thibet. Upper Burma (Fort White). VR. (= *gemmata*, Leech and *demea*, Ob).

β. Unh inner edge discal band irregular.

*dieckmanni dulcis*, Ob. Amdo and Kokonor.

7a (6). Upf spots in 2 and 1 immediately under and in line with spot end cell. Unh submarginal band discontinuous, at most dots in 4 and 5, usually preceded by a pale streak ; inner edge of discal band irregular.

7 (8a). Above spots yellow. Uph spot end cell and in 2 separate, latter shifted in. Unh overlaid sparse yellow scales and the spot mid costa in 8 is yellow. Spots upf large. (♀ figured by Elwes as ♂ *niveomaculata*).

*flavomaculatus*, Ob (30–35). The Silver and Yellow Hopper. W. China, E. Thibet, Kokonor. (= *postnigra*, South from Batang).

8a (7). Above markings white and unh the pale spot mid costa is silvery.

8 (9). Unh discal band posteriorly macular, spots in 2 and 3 rounded and detached, placed behind spots in 4 and 5.

α. Upf no basal markings, spots end cell and in 2 very large, much larger than the apical spots.

*niveomaculatus niveomaculatus*, Ob (30). The Snow Mountain Hopper. W. China and E. Thibet.

β. Upf spots base cell and costa present though faint ; discal markings narrow, no wider than the apical spots.

*niveomaculatus thibetanus*, South. S. E. Thibet.

9 (8). Unh discal band continuous and in a straight line.

α. Upf discal spots large, prominent spot base costa and cell, dot in 3 Unh discal band broad.

*christophi christophi*, Groum. (30). Christoph's Mountain Hopper. Thibet, Sinin Mts., Amdo and Kokonor.

β. Above markings very narrow. Unh discal band nearly linear.

*christophi micio*, Ob. Tsekou, E. Thibet.

(I have been unable to place the following—*demeaplutus* and *flavostigma*, Ob.)

**I. 52. Elwesia.** Leslie's Hopper.

Above dull dark brown ; cilia whitish. Upf non-hyaline small whitish spots, discal in 2 and 3 (often absent in ♂) apical in 6, 7 and sometimes in 8. Uph plain. Unf brown broadly overlaid whitish scales along costa and apex. Unh brown, entirely frosted whitish scales, giving a dull frosted appearance. In the ♀ the spots on F are larger and unh there is a white spot mid 5. Antennæ prominently chequered brown and white. Very like *Eogenes alcides*.

*lesliei*, Evans. (30–35). Chitral at low elevations in May to July. NR. (*lesliei* is Elwes' label name in the British Museum.)

**I. 53. Apostictopterus.** The Giant Hopper. (Plate 31).

Above and below dark chocolate brown, unmarked. Cilia dark brown. Wings very elongate.

**fuliginosus*, Leech. (65). Manipur and Naga Hills. W. China. VR. (= *curiosa*, Swin.)

**I. 54. Astictopterus.** The Forest Hoppers. (Plate 31).

Above dark velvet brown, usually becoming paler towards the termen F; Cilia brown. Upf rarely a small discal white hyaline spot in 3; from none to 3 apical spots 6-8, which may be small and separate, prominent and conjoined or only visible unf, always more prominent in ♀♀ and DSF. Unf dark brown, dorsum pale dull brown; WSF (*jama*) apical ½ of termen broadly paler; DSF (*henrici*) costa and apex broadly dark to light ferruginous and termen broadly overlaid whitish scales. Unh WSF dark brown usually some whitish scaling about dorsum, lower part of disc and termen also the dark bands, etc., present in the DSF may be more or less apparent; DSF pale ferruginous brown, more or less whitish scaled, prominent broad dark ferruginous discal band 1-6, large spot in cell, spot on either side in 7 and base 1, sometimes the spots forming the discal band are centred white scales.

α. Small form. DSF and WSF occur. DSF darker than the Indian form and with smaller apical spots F.

*jama henrici*, Holland (28-40). The Forest Hopper. S. and W. China, Hong Kong, Hainan. (= *chinensis*. Leech and *nubilus*, Mab.)

β. WSF large and usually with apical spots F, DSF with prominent conjoined apical spots and very prominent bands below.

*jama olivascens*, M. (30-40). S. India (Swin). Kumaon to Tavoy, Andamans, Siam, Tonkin. NR. (= *kada*, Swin; *unicolor*, Mab; *tonkinianus* and *permagnus*, Fruh.)

γ. Smaller, darker form, usually with no apical spots and no DSF.

*jama jama*, Fd. (28-35). Mergui, Malay Peninsular and Islands. (a pair DSF in British Museum from Philippines). (= *melania* Plotz; *quadripunctata*, Swin.; *fuligo*, Mab.)

**I. 55. Ochus.** The Tiger Hopper. (Plate 31).

Above dark velvet brown. Cilia brown, chequered yellowish at apex F and H. Upf sub-apical non-hyaline yellow band 5-8, may be reduced or absent. Unf black, costa narrowly yellow and veins at apex yellow; sub-apical yellow band more extensive. Unh ochreous yellow with numerous sharply defined black streaks and spots.

* *subvittatus*. M. (22-27). Kumaon to Dawnas. Tonkin. (= *subradiatus*, M. and *intricatus*, Fruh.)

**I. 56. Baracus.** The Hedge Hoppers. (Plate 31).

Above dark brown; upf usually with non-hyaline discal spots in 1 to 3, irregularly placed and decreasing apical spots in 6-8 (rarely outer conjoined dot in 5); uph plain and cilia dusky brown. Below costa and apex F and all H overlaid ochreous scales; rest of F black.

1 (2). Unh not brown spotted; a more or less prominent whitish or pale ochreous streak from base cell to mid termen.

α. ♂ above lower discal portion F up to discal marking and all H, except for costa and termen very pale greyish ochreous; in ♀ dark brown, with the pale markings whitish. Unh dark ochreous brown, pale central streak prominent, whitish, and with pale streaks between veins at termen.

*vittatus vittatus*, Fd. (30-34). The Hedge Hopper. Ceylon. NR.

β. Above uniform dark brown; upf markings faint. Unh central streak prominent, whitish, also a pale streak along vl; ground colour below brownish ochreous.

* *vittatus subditus*, M. Nilgiris and Palni Hills. NR.

γ. Above ochreous spots more prominent, especially in ♀. Unh bright ochreous, pale central streak pale ochreous and inconspicuous also broad obscure streaks between veins.

*vittatus septentrionum*, WM and DeN. Assam to Dawnas, NR.

**I. 56. Baracus.**—*(contd.)*

2 (1). Unf bright ochreous, profusely spotted dark ochreous brown ; general appearance of alternating series of large ochreous and brown spots. Upf ochreous spots prominent, traces of a spot in the cell and some yellow scales on the costa. Unf ochreous area brown streaked between the veins.

***hampsoni***, El. (26–32). Hampson's Hedge Hopper. Coorg and N. Kanara, NR. (May be a low elevation race of *vittatus*, *subditus* appears to be confined to the plateaux and ***hampsoni*** to the low country. ***plumbeola***, Fd. is a small pale dull blue species from the Philippines).

**I. 57. Ampittia.** The Bush Hoppers. (Plate 31.)

Above dark brown with non-hyaline markings F and H, yellow. Upf usually discal spots in 2 and 3, apical 6–8 and a spot in cell. Unh yellow with small black spots or dark brown with yellow spots.

1a (5). Unh yellow, more or less prominently black spotted. Uph never a yellow spot in the cell.

1b (4). Upf yellow spot in 1 absent or placed centrally under spot in 2.

1 (2a). Upf always a prominent spot in 1 against vl. Antennal club without apiculus. ♂ upf yellow markings very wide ; entire cell and costa yellow to beyond middle, extending into bases of 1 and 2 ; spot in 1 usually large ; discal spots in 2 and 3 conjoined to a large patch ; apical spots also form large patch and may be conjoined to the costal yellow area ; narrow submarginal yellow fascia below the apex ; uph with a broad yellow discal area, divided by dark veins and extending from 1 to 5 or 6, may be detached submarginal spots in 5 and 6. ♀ very variable ; normally dark brown with small yellow spots, on upf end cell, in 1, 2 and 3 and conjoined apical in 6–8, on uph discal in 2 and 3 and submarginal in 5, but specimens occur with markings as wide as in the ♂. Unh yellow with ill-defined black spotting. ♂ brand upf prominent.

* *dioscorides*, F. (22–28). The Bush Hopper. Ceylon, India, Burma, Siam, Shanghai, Tonkin, Malay Peninsular, Sumatra, Bali. C. (= *maro*, F, *camertes*, Hew and *palemonides*, Snell).

2a (1). Upf no spot in 1 against vl (may be very faint in *virgata*). Antennal club with well-defined apiculus. Unh black spotting sharply defined.

2 (3). Upf ♂ brand very prominent and extends below vl nearly to the termen. ♂ upf yellow markings narrow ; discal spots separate, apical conjoined ; narrow basal streak along costa and often streaks between veins behind apical spots ; lower edge cell spot continued along mv towards base ; yellow suffusion on basal ½ of 1. Uph suffused discal spots in 2–3 and 4–5.

*virgata*. Leech. (30). The Chinese Bush Hopper, C. China. R.

3 (2). Upf ♂ brand absent or small, circular, obscure.

α. Upf conjoined discal spots in 2–3, conjoined apical 6–8, elongated spots one above the other mid cell and a streak on costa over the outer end of the upper spot. Uph prominent discal spot in 4–5 at the end cell and suffused spot in 2–3 below. No ♂ brand.

*trimacula trimacula*, Leech. (22–25). The Trimaculate Bush Hopper, W. China.

β. Upf markings broad as in *dioscorides* ; cell and costa entirely yellow, but not extending at base below cell and not joining the apical patch along the costa. Uph large suffused discal patch 2–5. Cilia H entirely yellow, ♂ with obscure brand.

*trimacula maroides*, DeN. Assam to Dawnas. R.

4 (1b). Upf always a small spot in 1 against vl, but this spot is placed well behind the discal spots in 2–3, which are small and separate ; double spot in cell, lower part longer ; separate apical spots 6–8. Uph small spots in 2 and 3 or only in 3. Unh entirely yellow, black spotting absent or very sparse. Cilia H pale yellow. No ♂ brand.

*maga*, Leech. (30). The Plain Bush Hopper. C. China. Malay Peninsular (Arizan, Ozaki, 2 ♀ F.M.S. Coll). (= ? *myakei* and *arisana*, Matsum and *formosana*, Fruh, Formosa).

5 (1a). Unh dark brown with prominent yellow spots in cell and bases 1 and 7, discal and submarginal series.

α. Small. Above spots obscure or absent on F and absent on H. Below dark and the spots small.

**I. 57. Ampittia**—*(contd.)*

*dalailama nanus*, Leech. (22). The Dark Bush Hopper. China, Ichang and Ningpo.

β. Larger. Upf prominent triangular spot before end cell, discal spots in 2 and 3 close together and apical 6–8. Uph discal row 2–5.

*dalailama dalailama*, Mab. (30). W. China, Thibet. (=*lyde*, Leech).

**I. 58. Aeromachus.** The Scrub Hoppers. (Plate 31).

Above dark brown. Below with a discal and submarginal row of small pale spots of which the discal row may show upf.

1a (5). Antennal club with a small apiculus.

1 (2a). Below the pale spots purple. Above unmarked. Unh dark brown overlaid with a few ochreous scales.

α. ♂ brand upf mid 1 to base 3. Below the spots prominent.

*catocyanea catocyanea*, Mab. (25–30). The Blue Spotted Scrub Hopper. E. Thibet. VR.

β. ♂ brand a small fold mid vl. Below spots not prominent. Apex F produced in ♂.

*catocyanea kali*, DeN. Sikkim to N. Shan States. R.

2a (1). Below the pale spots yellowish white.

2 (3a). Unh beyond cell and unf at apex the veins white, at least near termen H ; often a prominent dark spot at end cell. Upf plain or with the discal spots showing. ♂ brand upf from mid 1 to base 3.

α. Wings rounded. Unf discal band sharply angled at v5. Unh clothed ochreous olive scales, but leaving very prominent postdiscal dark spots in 1–7 between the discal and submarginal pale spots ; an inner dark spot in 7 flanked by white spots and a spot end cell, the upper half of which is white. ♂ brand usually present, but vs 6 and 7 H not hair-pinned.

*inachus inachus*, Men. (24–32). The Veined Scrub Hopper. Japan, Amur. (=*propinquans*, Alph.).

β. Unh as *inachus*. Above and unf as *stigmata*.

*inachus chinensis*, El. W. China.

γ. Apex F in ♂ produced. Unf discal band evenly curved. Unh sparsely clothed olive scales, the dark markings not so prominent and sometimes not apparent, discal band not nearly so curved, the inner black spot in 7, if present, near base. ♂ with brand and vs 6 and 7 H hair-pinned.

* *inachus stigmata*, M. (22–30). Murree to Burma. NR.

3a (2). Below veins not pale. ♂ brand absent (except *piceus*) or just a fold mid 1.

3 (4). Below discal pale spots not conspicuously larger than the submarginal. Unh clothed olive ochreous scales.

α. ♂ with a brand.

*discreta piceus*, Leech (22–28). The Gray Scrub Hopper. E. Thibet.

β. ♂ no brand.

*discreta discreta*, Plotz. Assam to Burma, Tonkin, Malay Peninsular, Sumatra. NR.

γ. Unf markings very obscure. ? no brand.

*discreta javanicus*, El. Java.

4 (3). Below discal band of pale spots conspicuously wider than the submarginal series.

α. Below dark ; unh overlaid dark ochreous scales, spots prominent.

*jhora dubius*, El. (22–28). The Dingy Scrub Hopper, Palnis, Travancore, C.

β. Below brighter ; unh overlaid ochreous scales, and spots prominent.

*jhora jhora*, DeN. Sikkim. ? to N. Burma. R. (I have not seen *jhora* from outside Sikkim nor *discreta* from W. of Assam ; it is possible that they are conspecific since the genitalia are alike).

5 (1a). Antennal club without apiculus. Wings rounded, small. Below markings obscure ; unh overlaid olive grey scales.

α. ♂ no brand.

*pygmæus pygmæus*, Fab. (20–22). The Pigmy Scrub Hopper. S. India, Assam to Burma, Malay Peninsular, Sumatra. NR. (=*indistincta* and *obsoleta*, M).

β. ♂ with brand.

*pygmæus musca*, Mab. Luzon.

**I. 59. Pedestes.** The Bush Bobs. (Plate 31).

Above with hyaline spots on F only.

1a (3). Upf with spot across cell, discal spot in 3 and a larger one in 2 running below the above two ; 3 apical spots in 6–8.

1 (2). Above blue-black, central hyaline spots large and white, spot in 8 to base 3. Below costa and apex F and all H overlaid olive ochreous scales. Unh small white discal spots in 2 and 3.

* *masuriensis*, M. (30–32). The Mussoorie Bush Bob. Mussoorie to Assam. NR.

2 (1). Above dark brown, hyaline spots pale yellow, smaller, spot in 3 not to base 3. Below costa and apex F and all H overlaid ochreous scales. Unh unmarked, but faint traces of discal spots are sometimes visible. In a not infrequent variety the discal spots in 2 and 3 upf are widely separated from the cell spot.

* *pandita*, DeN. (25–30). The Brown Bush Bob. Sikkim to N. Burma. NR. (=? *tali*, Swin, Haut Yunnan and *parnaca*, Fruh, Tonkin).

3 (1a). Upf with 2 spots end cell, 3 discal, 3 apical. Unh dull red brown, several basal and a curved discal row of indistinct black spots.

*bononoides*, Druce. (34). Sarawak. (Not examined by me ; placed by Druce in *Pedestes*, but position doubtful).

**I. 60. Arnetta.** The Bobs. (Plate 31).

1a (3a). Above dark brown with small hyaline white spots upf, upper edge cell (may be absent in *vindhiana*), discal in 2 and 3 close together, apical 6–8 minute. Unh with more or less complete set of small white spots, discal row 1–7, base 7, mid cell, base 1 (double).

1 (2). ♂ unf no tuft Unh ochreous brown to greenish ochreous, spots obscure.

* *vindhiana*. M. (25–32). The Vindhyan Bob. S. to C. India. NR. (=*nilgiriana*, and *modesta*, M.)

2 (1). ♂ unf with a tuft of black hairs mid dorsum and vl distorted in middle. WSF unh dark brown, clothed dark ochreous scales with spots very prominent. DSF pale to dark brick red more or less clothed whitish scales. Spots small and sometimes incomplete.

* *atkinsoni*, M. (25–32). Atkinson's Bob. Sikkim to Tavoy. NR. (= *subtestaceus* and *khasianus*, M.)

3a (1a). Unmarked above and unh.

3 (4). Unf unmarked except for dorsum being paler. Above and unh dark rich brown. ♂ with black tuft unf and vl. distorted as in *atkinsoni*.

*kala*, Evans. (30). Sumatra. (Described from 1 ♂ of which the antennæ and palpi are missing, but the genitalia are very similar to *atkinsoni* ; in general appearance the insect resembles *Itys iadera* and *Iambrix unicolor*).

4 (3). Unf with a conspicuous triangular apical orange yellow patch from 6–8. Unf costa and apex and unh very sparsely overlaid with conspicuous ochreous scales.

*verones*, Hew. (31). Sumatra. Kuala Tahan, Pahang (Singapore Museum). (Usually considered as a variety of *Koruthaialos rubecula*, but is structurally quite different : the palpi, antennæ and venation show a close alliance with *atkinsoni* and the genitalia though peculiar, are allied).

**I. 61. Iambrix.** The Bobs. (Plate 31).

Normally without hyaline spots except sometimes in the ♀ of *salsala* on upf and in *tytleri*.

1a (4a). Unh with small silver spots. ♂ no brand.

1 (2a). Upf with prominent pale yellow hyaline spots, large spot towards end cell, tapering towards scv., larger spot in 2 with its inner edge in line with the inner edge of the cell spot, may be a dot in 3, apical spots 6–8, non-hyaline spot in 1 against vl. Below costa and apex F and all H overlaid bright ferruginous ochreous scales ; unf the spots white and the dorsum pale ; unh prominent small silver spots in 2, 3, 5, 7 and cell, more or less black edged and some black streaks towards the margin.

*tytleri*, Evans. (28). Tytler's Bob. Naga Hills, Siam, Borneo. VR (= *woolletti*, Riley).

**I. 61. Iambrix**—(*contd.*)

**2a** (1). Upf no prominent hyaline spots (except ♀ *salsala* which never has a spot in the cell).

2 (3). Unh black edged silver spots in 1, 5 and 7, that in 5 most prominent; rarely a faint spot in cell, but never so prominent as the spot in 5; spots in 1 and 7 often faint or absent. Above dark brown with some dark ochreous scaling on F, which in ♂ forms a more or less apparent series of discal spots; in ♀ these spots are more or less replaced by a non-hyaline spot in 1 and a series of hyaline spots in 1–8, bent in at v6. Unf costa and apex and all unh densely clothed ferruginous ochreous scales; unh in ♂ a more or less prominent silver spot end cell against upper edge and two small discal spots in 4 and 5.

α. Smaller. Upf ♂ only ochreous spots in 1 and 2.

*salsala luteipalpus*, Plotz. (26–30). The Chestnut Bob. Ceylon. South India. C.

β. Larger. Upf very variable, but usually discal spots in 1 and 2 are obscure, those in 3–6 being more conspicuous.

* *salsala salsala*, M. Sikkim to Burma, China, Siam, Malay Peninsular and Islands. C. (= *vasuba*, Fruh, Tonkin).

3 (2). Unh normally with small silver spots in 1 (double), 2, 5 and mid cell, the spot in cell as prominent as the spot in 5. Above much darker velvet brown, very little ochreous scaling about apex F and no formed spots. Unf costa and apex and all unh overlaid dark ochreous: unh silver cell spot present, spots in 4 and 5 usually absent.

*stellifer*, But. (24–28). The Malay Chestnut Bob. Karens to South Burma. Annam, Malay Peninsular and Islands. Philippines. NR. (=*niaicus*, Fruh).

**4a** (1a). Unh unmarked. ♂ upf a glandular streak along 2nd quarter of v1 from base, the vein being slightly deflected.

4a (5a). Above unmarked dark velvet brown, paler in ♀. Below as above; unf lower discal area to dorsum paler.

*unicolor*, DeN. (31). Perak, Pahang, Malacca, Sarawak. R.

**5a** (4) Upf with red discal band. Below costa and apex F and all H overlaid dark ochreous scales. ♂ unf a thin tuft of hairs mid dorsum overlying a black and white brand in 1; uph scales above cell to costa modified.

5 (6). Upf red band dull, narrow, appears composed of densely packed dark ochreous scales, does not extend into 1 and is not wider than the dark termen.

***sindu***, Fd. (25–28). The Small Red Bob. South Mergui. VR. Malay Peninsular and Islands. NR. (=*obliquans*, Mab. and *yamanta*, Fruh. Felder's types of ***sindu*** at Tring are ♂ *Koruthaialos rubecula* and ♂ *kophene*; he describes *sindu* as near *Astictopterus jama*, but smaller; Felder's type of *jama* at Tring is *Koruthaialos xanites*, but his description refers to an insect without any markings; the conclusion is that these Tring types are unreliable).

5 (4). Upf red band much broader, clearer and brighter, much broader than the dark terminal area and extends into 1; in ♀ it extends into cell, the end of which is marked by a dark line.

*latifascia*, El. (27–30). Borneo. Sumatra (Fruh). Pahang (F.M.S. Museum).

**I. 62. Suastus.** The Palm Bobs. (Plate 31).

Above dark brown, with or without hyaline spots F. Unh usually with dark spots.

1 (2a). Unh grey (brown, overlaid greyish ochreous scales) with a variable number of sharply defined black spots; spot against upper outer edge of cell always present and as large as any other spot; discal series 1, 2, 3, 5 (usually absent) and 6. Upf hyaline white spots usually prominent, but may be small or absent; spot across cell beyond middle (lower part often absent), spot in 3 and large spot in 2 with its inner edge under the centre of the cell spot and its outer edge under the inner edge of the spot in 3; apical spots 6–8; usually non-hyaline lower spot in 1 and sometimes and upper dot. Unf apex and costa grey and there may be some black spotting at apex. Cilia grey. Size very variable.

α. Much darker above and below dark grey.

***gremius subgrisea***, M. (32–42). The Indian Palm Bob. Ceylon. C.

β. Generally paler.

* ***gremius gremius***, F. India, Burma, South China (= *divodasa*, *M*; *robsonii*, *DeN*; ***nigroguttata***, Matsum, Formosa).

**1. 62. Suastus.**—(*contd.*)

2a. (1). Unh with obscure ill defined, suffused black spots in a decreasing row from 1-3, 6 and upper edge of cell ; spot in 1 always present and larger than the rest.

2b. (4). Uph no white about the tornus.

2 (3). Above black, unmarked. Cilia F brown ; H white, chequered brown. Unf a white patch mid 1 ; unh white to v6 and scv, some obscure brown marginal spots.

*minuta*, M. (28-32). The Ceylon Palm Bob. Ceylon. NR. (=*sinhalus*, Plotz.).

3 (2). Above dark brown with hyaline spots F.

α. Upf small hyaline spots in 2 and 3, rarely a dot in 6. Cilia brown, below with more or less purple sheen ; apex and costa F and all H overlaid sparse grey white scales, general appearance dark grey brown. Unf obscure discal white area in 1.

*rama bipunctus*, Swin. (26-34). The Small Palm Bob. Nilgiris. R.

β. Upf always hyaline spots in 2 and 5 and usually a double (or single lower) spot in cell and a spot in 6 ; the discal spots much closer together than in *gremius*, inner edges of spot in 2 and cell spot in line ; traces of spot in 1 against vl, which unf shows as a broad white patch extending across 1. Cilia narrowly white becoming brown at apex F. Below white scaling much denser, general appearance pale grey.

*rama rama*, Mab. Bengal, Sikkim to Tavoy R. (=*sala*, Auct nec. Hew ; true *sala* is a *Plastingia*).

γ. Above spots prominent. Cilia H grey, brown at apex H and on F. Below apex and costa F and all H overlaid pale ochreous scales ; unf white area mid 1 more extensive, reaching dorsum.

* *rama aditus*, M. Andaman and Coco Islands. R.

4 (2a). Uph with white tornal area. Above black, no spots upf (may be faint in race *scopas*). Cilia white to apex H. Below as *minuta*.

α. Uph white area narrow and irregular, most extensive along vs 1a and 1, not reaching dorsum.

*everyx everyx*, Mab. (26-34). The Malay Palm Bob. Tavoy, VR. Malay Peninsular, Sumatra, Pulo Laut, Borneo. (=*tripura*, DeN).

β. Uph white tornal area regular and sharp defined, extending ½ along termen and dorsum.

*everyx scopas*, Stg. Java, Bali and Philippines. (=*albescens*, Mab. ; *migreus*, Semp. ; *chilon*, Doh, Sumba).

(*plana*, Swin, New Guinea, is described as belonging to this genus).

**1. 63. Iscasa.** DeNicèville's Bob.

Above dark brown with a conspicuous purple gloss. Upf double spot in cell, lower portion prolonged nearly to base ; small non-hyaline spot in 1 against vl, spots in 2 and 3 and dots nearer margin in 4 and 5, apical in 6-8. Uph small spot mid cell ; continuous discal band 1-5, separated by veins and spots composing it elongate and irregular. Below as above but no purple sheen.

*ilion*, DeN. (32). Lombok. VR.

**1. 64. Scobura.** The Forest Bobs. (Plate 31.)

Aboye dark brown with hyaline spots F and H ; upf always non hyaline spot in 1 against vl, large spot in 2, double spot in cell, of which the upper part is smaller and may be absent, apical spots 6-8 (may be incomplete).

1a (3a). Upf no spot in 3 (rarely a dot in *cephala*) and the cell spot is immediately over the spot in 2. Uph large double hyaline spot in 4-5 and smaller one in 2 (may be absent). Cilia grey on H.

1 (2). Upf usually a small spot in 4. Unf costa and apex and all H greenish yellow. Unh there may be 3 small white spots in 1, 3 and 6 against the larger spots in 2, 4-5 and the spots are usually chestnut edged ; in ♀ the chestnut colour is very pronounced and usually occupies the whole area from the spots to the termen and on the apex upf.

**cephala*, Hew. (27-36). The Forest Bob. Sikkim to Burma, Malay Peninsular, Sumatra and Borneo. NR. (= *isota*, Swinh.).

**I. 64. Scobura.**—*(contd.)*

2 (1). Upf never a spot in 4. Uph spot in 4–5 always large and spot in 2 obscure or absent. Unf apex and costa and all H overlaid greyish green. Unh spots black edged and often a discal row of black spots and 2 spots in the cell, also black.

*phiditia*, Hew. (32). The Malay Forest Bob. Manipur to Burma. Malay Peninsular and Sumatra. Borneo. R. (= *martini*, El).

3a (1a). Upf prominent spot in 3.

3 (4). Upf no spots in 4 and 5, spot in 2 shifted out. Uph small equal hyaline spots in 2, 3 and sometimes 5, spot in 3 much nearer margin. Below basal half costa F and basal half H bright yellow; apex F and outer half H bright chestnut; unh small dark ringed white spots in 1, 2, 3, 5, 6 and dark spot base 7 (may be absent).

*cephaloides*, DeN. (36–40). The Large Forest Bob. Sikkim to Burma. Tonkin and Hainan. R.

4 (3). Upf figure of 8 spot in the cell, large spot base 2, small spots 1, 3, 4, 5 and 6–8. Uph a spot in 2 and a double spot in 4–5. Unh and apex unf veins pale.

*conia*, Hering. China. (? = ab of *cephala*).

**I. 65. Suada.** The Grass Bobs. (Plate 31).

Above brown with hyaline white spots F, typically prominent lower spot in cell, large spots in 2 immediately below it, dot base 3, apical spots 6–8 and an elongate non-hyaline spot along mid vl. Unh unmarked.

*α*. F spots prominent; uph rather paler mid disc. Unf apex broadly and all H clothed dense olive ochreous scales.

**swerga swerga*, DeN. (32–36). Sikkim to Burma, Malay Peninsular. Sumatra. NR. (=*moelleri*, M).

*β*. F. spots prominent. Larger. Uph much paler mid disc in ♂ and in ♀ whitish, costa broadly and termen narrowly brown. Unf apex brown above v6 and then decreasingly white to tornus; unh all white to narrow brown costa.

*swerga triplex*, Pl. Java. (Plotz gives no locality and I prefer to use his name for the Javan race rather than invent a new name.)

*γ*. F spots on disc small, separate and may be absent. Uph tornus broadly pure white extending half-way along dorsum and termen. Unf and unh as *triplex*.

*swerga cataleucos*, Stg. Borneo, Pulo Laut, Philippines. (= *albinus* Semp).

**I. 66. Koruthaialos.** The Velvet Bobs. (Plate 31).

Above and below dark brown, no spots but usually with a prominent red discal band upf and unf; unh no scaling.

1a (3a). Palpi third joint long and thin.

1 (2). Upf discal red band sharply defined, 3 mm. wide, clear red and extending from upper edge of cell (or just beyond) to v2 (or just beyond). Upf band rather more extensive at either end, sides straight and parrallel or convergent posteriorly. A fairly constant form.

*rubecula*, Plotz. (32–37). The Narrow-banded Velvet Bob. Assam to Burma. Malay Peninsular and Islands, Philippines, Luzon, Natuna and Celebes. C. (= *hector*, Wat and *namata*, Fruh. I have verified true *rubecula* from Assam to Malay Peninsular and Sumatra, but the other localities require check).

2 (1). Upf discal band absent, just indicated or sullied.

*α*. Upf unmarked; unf usually some faint red suffusion at upper end of cell and in ♀ a dusky suffused band.

*butleri butleri*, WM. (32–37). The Dark Velvet Bob. Sikkim to N. Burma. R. (I have verified the type specimen in the Indian Museum.)

*β*. Upf discal band sullied, dull, 2 mm. wide, from upper end cell to v3 or 2, dcv. prominently black. Unfvariable, may be a trace of red only at end cell or a dusky red band from costa to below vl.

*butleri avidha*, Fruh. S. Burma. S. Annam. NR.

*γ*. Upf unmarked or with traces of a red spot at end cell. Unf a large dusky red area about upper edge of cell and a detached smaller area about base 3 (may be absent).

**1. 66. Koruthaialos**—(*contd.*)

*butleri niasicus*, Fruh. Sumatra, Nias.

δ. Larger, otherwise as last.

*butleri haraka*, Fruh. Java.

3a (1a). Palpi third joint short, stouter, just protruding.

3b (5). Upf always a red band.

3 (4). Unf discal red band divided by dark veins, discontinuous at vl and the red area is extensive in 1. Upf band dusky red divided by dark veins and the dcv. black, extends from costa to tornus, 2 mm. wide in ♂, 5 mm. in ♀. Large.

*focula*, Plotz. (46–52). The large Velvet Bob. Sumatra, Java. R. (= *kophene*, DeN).

4 (3). Unf discal red band not divided by black veins, extends from costa to dorsum and is more or less equally wide throughout, broad and clear red, inner edge below cell always concave.

α. Upf band orange red, from costa to tornus, usually wide (5 mm., but may be as narrow as 3 mm. and stop at v3; on unf in narrow banded specimens the inner edge of the band is irregular, but always concave). ♀ unh ochreous brown.

*xanites gopaka*, Fruh. (34–40). The Bright Red Velvet Bob. Assam to Burma. Tonkin. NR.

β. Larger. Upf band deeper red and always broad.

*xanites xanites*, But. (37–41). S. Burma. Malay Peninsular. Borneo and Philippines. NR. (= *lætitia*, plotz; *palawites*, Stg.; *luzonensis*, Fruh).

γ. As last but larger still.

*xanites kerala*, DeN. (49)* Sumatra.

δ. Upf discal band very dark red and reduced, may consist of only of a spot end cell. Unh band as broad as usual.

*xanites javanites*, Stg. (36–39). Java, Bali, Batu.

5 (3b). Above and below dark brown with a purple plum suffusion, no traces of a red band; unf dorsum broadly pale pinkish brown. F vl1 not so close to v12.

*nigerrima*, Swin. (36–42). The Plain Velvet Bob. Assam to S. Shan States. R. (I have verified the type.)

**1. 67. Sancus.** The Coon. (Plate 31).

Above dark shining brown, unmarked. Below dark brown, dorsum F pale; on apex F a narrow oblique purple white patch, small whitish post-discal spots in 4 and 5 and subapical in 6–9. Unh broadly pale brown, a purple grey area about end cell, separated from a similar broad marginal area by discal spots in a straight line from 2–5, spots in 6, 7 and in middle of upper edge of cell.

α. The markings below prominent.

* *pulligo subfasciatus*, M. (36–46). South India, Cachar to Burma, Siam, Annam. Malay Peninsular. C.

β. Larger. Below the purple grey areas absent, the spots dull yellow.

*pulligo pulligo*. Mab. Sumatra, Java, Borneo and Bali. (= *forensis*, Plotz, *kethra*, Plotz = *ulunda*, Stg. is the Philippine race and *fuscula*, Snellen = *cellundo*, Stg., the race from the Celebes).

**1. 68. Watsoniella.** Watson's Demon.

Above dark brown unmarked, becoming outwardly paler on F. in ♀ broadly and very markedly so. Below similar, but paler and unf dorsum to v2 very pale brown. Very like *Kerana dioctes*.

*swinhoei*, Elwes. (48–50). Sikkim to Burma. R.

**1. 69. Ge.** The Circular Tufted Demon.

♂ above uniform dark brown, cilia grey; ♀ with pale yellow discal spots in 2 and 3 and apical in 6–8, conspicuously paler beyond the spots; uph in ♂ centrally paler. Below dark brown, dorsum F pale brown; in ♀ the outer half of the wing is conspicuously very pale brownish yellow.

*geta*, DeN. (35–37). S. Mergui. Malay Peninsular, Sumatra. Batu, Java and Borneo. VR.

**1. 71. Kerana.** The Demons. (Plate 31).

Above dark brown with or without a red band F.

1 (2*a*). Above dark brown unmarked, cilia brown ; ♂ no brand. Below dark brown, termen F and H broadly paler ; on H the basal area is also paler, leaving a dark chocolate costa and discal band to v1 ; costa and apex F and all H clothed inconspicuous ochreous scales. F v5 bent at origin.

* *nigrita*, God. (48–60). The Chocolate Demon. Bengal, Kumaon to Burma, Siam, Malay Peninsula and Islands, Philippines. C. Individuals from the Malay Islands have a more or less prominent whitish curved sub-apical fascia unf. (= *diocles*, M ; *maura*, Snell ; *fumatus*, Mab. ; *evaira*, *sumata*, *prabha*, *vasuba*, *savara*, Fruh).

2a (1). Upf broad red discal band (may be absent in *niasana*).

2b (5). F v5 bent down at origin. Body dark brown.

2 (3a). Below no spots. ♂ unf towards base a large black velvet patch from v1 to mid cell ; uph a similar patch filling the cell.

α. Upf a very broad orange red discal band from mid costa to tornus at v1 ; narrower at costa and indented at the origin of v5.

*armata armata*, Druce. (49–60). The Red Demon. S. Mergui, VR. Malay Peninsula, Sumatra and Borneo.

β. Upf, band absent, obscure or broken into spots.

*armata niasana*, Evans. Nias.

3a (2). Below with curious glistening pale purple spots only visible in a side light ; unf in cell just before the red band, sub-apical in 5, 6 and 7, unh discal in 2, 3, 5 and 6. Upf and unf a broad orange red band from mid costa to v1 at tornus.

3 (4). Upf the red band narrows towards costa.

*gemmifer*, But. (35–38). The Gem Demon. Tavoy to S. Burma, Malay Peninsula, Sumatra, Borneo, Natuna, Philippines. R. (= *dombya*, Fruh).

4 (3). Upf discal band broadens towards costa.

*vaijrada*, Fruh. (36). Fruhstorfer's Demon. Borneo. VR.

5 (2b). F v5 only slightly bent down at origin. ♂ upf a very broad orange yellow band from mid costa below the scv to mid dorsum ; at v2 it is curved in and nearly reaches the base. Thorax and base H clothed orange yellow hair. Abdomen with narrow white rings. Unf discal band to costa. In ♀ upf the red band is not continued towards the base posteriorly and the yellow hairs on the thorax and at base H are absent, very like *xanites*.

*fulgur*, Den. (37). The Yellow Demon. Malay Peninsular, Sumatra and Borneo. VR. (I am not satisfied with the position of this species but have only been able to examine damaged specimens.)

**1. 73. Udaspes.** The Grass Demon. (Plate 31).

1 (2). Above dark brown with large hyaline white spots ; upf a spot across cell, conjoined to a bent spot in 1–2, small detached spot in 3, conjoined spots in 4 and 5, conjoined sub-apical spots in 6–8 ; uph a large central hyaline area in 1–6. Cilia chequered brown and white. Antennæ white banded below club. Below dark brown, apex F, dorsum and termen H overlaid pale whitish scales, which on H leave a large dark spot mid 1 to base 2. Considerable seasonal variation in the colouring below.

* *folus*, Cr. (40–48). Ceylon, India, Kangra to Burma, Siam, China, Malay Peninsular and Islands C. (= *cicero*, Fab ).

2 (1). Uph a prominent white spot in 4–5 and a small spot base 3. Unh striated.

*stellata*, Ob. (40–45). The Thibetan Grass Demon. Mænia, E. Thibet. VR.

**1. 74. Notocrypta.** The Banded Demons. (Plate 31).

Above black ; upf a broad curved hyaline white discal band consisting of large conjoined spots in 1, 2 and cell. Below dark brown usually with some whitish scaling on the paler areas at the apical part of the termen F and the dorsal portion H also on H from mid end cell to mid v1 ; often some ochreous scaling between band and apex on F and on basal half of H Antennæ white banded below beginning of club or only white streaked below.

1a (4a). F no traces of sub-apical spots in 6 8 ; never a well-defined spot in base 3 (only in *renardi*). Unf a yellow costal patch at end of the band.

**I. 74. Notocrypta**—(*contd.*)

1 (2a). F discal band very wide, width = basal black area and placed nearer base than apex, more compact and straighter than usual; unspotted except very rarely a faint dot mid 4 unf. F much squarer than usual, termen at right angles to dorsum. Below with more or less while scaling.

*quadrata*, Elwes. (40–45). The Broad Banded Demon. Malay Peninsular, Borneo. R.

2a (1). F discal band narrower and placed rather nearer apex than base. F dorsum at an angle of 120 to 150 to termen.

2 (3). F unmarked except for the discal band. Apex F produced. Below white scaling only traceable at apex F, but margins broadly paler brown, also centre of disc H, thus resembling *Kerana nigrita*.

α. F discal band broad and compact.

*volux volux*, Mab. (39–42). The Dark Banded Demon. Karens to S. Burma, Siam, Malay Peninsular and Islands, Philippines. NR. (This is a common species in S. Burma and passes as *albifascia*, which is a *Hyarotis*; figured in Lep. Ind. as *albifascia*; the correct name and synonymy in this and other species in this genus is doubtful.)

β. F discal band narrow, tending to be macular and the spot in 1 may be absent.

*volux niasana*, Evans. Nias.

3 (2). F almost invariably a prominent spot mid 4, if not visible upf may show unf; very rarely a dot mid 5 and there may be a dot mid 3 against v3. Wings rounded and band more curved than usual.

α. Below white scaling usually prominent. Unh no silver spots.

*paralysos alysia*, Evans. (33–40). The Common Banded Demon. Ceylon. S. India, Mussoorie to Karens. C.

β. Below white scaling faint and usually obsolete.

*paralysos devadatta*, Fruh. Dawnas to S. Burma, Malay Peninsular, Sumatra, Nias. C.

γ. Darker, larger, wings rather more pointed. Below very little or no white scaling.

*paralysos sidha*, Fruh. Java. Borneo. (=*asanga*, Fruh. and *sukavata*, Fruh. Sumbawa).

δ. Unh a prominent silver spot mid cell and small spots in 2 and 5. Larger, band broader; below white scaling faint.

*paralysos paralysos*, WM. Andamans. NR.

(The race from the Philippines and Celebes is *clavata*, Stg.=*chunda* and *yaya*, Fruh.).

4a (1a). F always with 2 or 3 sub-apical spots, which are at least traceable unf; usually small spots mid 3, 4 and 5.

4 (5). Unf the discal band continued to costa by a more or less well developed yellowish white patch. The white spotting and scaling below is very variable; local races are very difficult to define.

α. Small. Spotting and scaling variable.

* *feisthamelii alysos*, M. (38–50). The Spotted Demon. Murree to Burma. W. China. Siam, Malay Peninsular, Sumatra and Borneo. C. (=*rectifasciata*, Leech).

β. Larger. White spotting and scaling below prominent

*feisthamelii avattana*, Fruh. Java, Lombok and Sumbawa. (=*samyutta* and *dharna*, Fruh. The Philippine race is *alinkara*, Fruh and the Celebes race *celebensis*, Stg. Race *feisthamelii*, Bdv., flies from the Moluccas to Queensland and =*varians* and *chimaera*, Plotz.; *padhana*, *samana* and *satra*, Fruh.; ? *klossii*, Roth).

5 (4). Unf discal band not continued above scv. Above spotting and below white scaling prominent. Apical spots conjoined.

*curvifascia*, Fd. (38–50). The Restricted Demon. Ceylon, S. India, Sikkim to Burma, China. Andamans, Siam, Malay Peninsular, Sumatra ? Java, Borneo and Philippines. C. (=*restricta*, M.).

(An allied species, *renardi*, Ob., with many named forms and possibly comprising more than one species flies from the Moluccas to Australia; it differs principally in having a well defined spot at base 3 and the spot in 1 tends to be detached).

**I. 75. Gangara.** The Giant Redeye. (Plate 31.)

Above brown with large discal hyaline yellow spots on F, across cell, in 2 and 3. Below some blue white scaling at apex F and bands composed of similar scales on H.

1 (2). F with apical spots in 6–8, spot in 6 out of line, nearer margin; spot in 3 against mid v4. Cilia H grey at apex.

α. Normally with a small non-hyaline spot in 1 against v1 under the spot in 2.

*thyrsis clothilda*, H5. (70–76). The Giant Redeye. Ceylon. NR.

β. No spot in 1.

* *thyrsis thyrsis*, F. India, Sikkim to Burma, Siam, Tonkin, Malay Peninsular and Islands. NR. (=*pandia*, Fruh).

γ. F spot in 2 not to base of v3; in other races spot in 2 is larger and reaches to middle of cell spot.

*thyrsis yasodara*, Fruh. Andamans.

δ. Upf only 2 apical spots in ♂.

*thyrsis philippensis*, Fruh. Philippines.

2 (1). F no apical spots; discal spots differently placed, spot in 3 reaches to behind origin of v4 and nearly to origin of v3; spot in 2 against mid v3 and not near cell spot. Unh a white spot near base 7. ♂ upf the glandular streak absent; unf yellow tuft present.

*sanguinocculus*, Martin. (65–70). Martin's Redeye. Malay Peninsular, Sumatra, Borneo R.

**I. 76. Erionota.** The Palm Redeye. (Plate 31).

Above brown with large hyaline yellow discal spots on F, in cell, 2 and 3; spot in 3 against mid v4.

1 (2). Upf no hyaline spots (very rarely faint); spot in 2 reaches to middle (or further) of spot in cell. Unh pale to dark brown with an irregular, often obscure, paler discal area.

α. Upf hyaline spots and apex white.

*thrax grandis*, Leech. (70–76). The Palm Redeye. W. China. VR.

β. Upf hyaline spots yellow.

* *thrax thrax*, L. S. India. Dun to Burma. Siam, Malay Peninsular and Islands, Philippines. NR.

γ. Smaller. Apex F above more or less white; antennæ below club much whiter and cilia above whitish. Unf a white apical patch.

*thrax acroleuca*, WM. and DeN. (52–55). Andamans and Nicobars. NR. Occurs as a scarce variety of *thrax* in Assam to Burma, Malay Peninsular and Borneo. (= *hiraca*, M and *lara*, Swin).

(*alexandra*, Semp, is a race or perhaps species from Luzon. *sakita*, Ribbe is the Celebes race and the Moluccan is *hasdrubal*, Fruh).

2 (1). Upf with a hyaline spot in 6–8, spot in 6 pushed out (not so much as in *thyrsis*); spot in 2 does not reach to the middle of the cell spot; apex may be more or less white tipped. Unf sub-apical pale area. Unh dark brown with a more or less purple gloss, margin broadly paler, conjoined irregular violet white spots about end cell and from 1–7, also a spot at extreme base cell and sometimes a spot near termen in 1.

*sybirita*, Hew. (60–70). The Sybarite Redeye. S. Mergui, VR. Malay Peninsular, Borneo and New Guinea.

**I. 77. Paduka.** The Banded Redeye. (Plate 31).

♂ above dark brown, unmarked. ♀ with large hyaline yellow discal spots in cell, 2 and 3, spot in 2 with its inner edge against middle of cell spot and its outer edge against inner edge of spot in 3, which is against mid v4; small non-hyaline spot in 1 against spot in 2. Unf pale sub-apical area, overlaid sparse white scales and a more or less prominent spot on 7; dorsum whitish. Unh a broad prominent transverse band of violet white scales from v1 below cell to apex and expanding towards apex. Cilia above pale yellow.

α. Unh transverse band well defined throughout, violet white.

* *lebadea subfasciata*, M. (62–68). Ceylon. R.

β. Unh as last; no trace of the spot in 7 unf.

*lebadea glandulosa*, Dist. Sikkim to Burma, Tonkin, Malay Peninsular, Sumatra and Java. VR.

**I. 77. Paduka**—(*contd.*)

γ. Unh transverse band silvery white, dense from v1 to end cell and thence sparse, extending to middle of disc. Unf scaling to apex. ♀ spots whiter, smaller and more separated, spot in 1 larger.
*lebadea andamanica*, WM. Andamans. R.
δ. Upf ♂ brand more distinct. ♀ no spot in 1 upf.
*lebadea lebadea*, Hew. Borneo, Pulo Laut. R.
(*toradja*, Fruh. is apparently a distinct species from the Celebes, with 3 large white spots upf and some grey scaling unh, not forming bands).

**I. 78. Pudicitia.** The Spotted Redeye. (Plate 34).

Above brown with large yellow hyaline spots F and H. Upf 2 spots in cell (lower nearer base and behind origin of v3) large spot in 2 immediately below, spot in 3, ½ along v4; apical spots 6–8 in line; semi-hyaline spot above middle of v1 replaced by a yellow patch unf. Uph 3 hyaline yellow discal spots in 2, 3 and 4–5. Below as above.
* *pholus*, DeN. (58–64). The Spotted Redeye. Bhutan to Naga Hills. VR.

**I. 79. Matapoides.** The Tufted Redeye.

Above dark brown; upf a green streak in certain lights below v2; otherwise unmarked; cilia orange at tornus H. Below rich dark brown, unmarked; unf ♂ a brand on the nacreous area mid 1. H lobed.
*smaragdinus*, Druce. (60). Borneo. VR.

**I. 80. Matapa.** The Branded Redeye. (Pate 31).

Unmarked dark brown.
1 (2a). H cilia grey or very pale yellow. Unh warm ferruginous brown. ♂ brand black, obscure.
*aria*, M. (40–45). The Common Redeye. Ceylon, S. India to Dun to Burma, Andamans, China, Hainan, Siam, Tonkin, Malay Peninsular and Islands to Philippines. C. (= *pulla*, Plotz and *neglecta*, Mab.).
2a (1). H cilia and tip of abdomen bright orange.
2b (4b). ♂ brand black, obscure.
2 (3). Above purple glossed, especially at apex F. ♀ body and base wings clothed metallic bluish hairs. ♂ below dark brown, apex and dorsum F paler; ♀ uniform pale brown.
*purpurascens*, El. (48–54). The Purple Redeye. Sikkim to Karens. Tonkin, Sumatra, Borneo, R.
3 (2). Above no purple gloss, apex F grey. Below ochreous brown; apex and mid dorsum F and base H very pale brown.
*druna*. M. (48–54). The Dark-brand Redeye. Sikkim to Burma. Andamans, Malay Peninsular and Islands. NR.
4a (2b). ♂ brand grey and prominent.
4 (5). Below dull dark brown, veins conspicuously black.
*sasivarna*, M. (40–47). The Black-veined Redeye. Sikkim to Burma, Malay Peninsular, Sumatra, Pulo Laut. NR.
5 (4). Below ♂ dark ferruginous brown; ♀ pale yellow brown. Upf and unf apex rather paler.
**shalgrama*, M. (46–52). The Grey-brand Redeye. Sikkim to Burma, Andamans, Tonkin, Java, Bali, Pulo Laut. NR.
(*celsina*, Fd. with a tear-shaped brand occurs in the Philippines, Celebes and Moluccas. It = *hyrmina*, Hew: *assur*, Mab and *ractaya*, Fruh).

**I. 81. Oerane.** The Demon Flitter. (Plate 31).

Above black; upf compact broad white central band from upper edge cell to mid v2 and a small conjoined spot base 3, no apical spots or spot in 1 or on H. Below dark brown, dorsum F paler; apex F and all H very sparsely overlaid greenish ochreous scales; unf discal band is continued in ♂ to v12 by greenish ochreous scales and in ♀ by white scales. ♀ paler and with wider band.
**neaera*, DeN. (28–34). Dawnas to S. Burma. Malay Peninsular and Islands. R. (= *pusilla*, Fruh. *drimo*, Mab. is a variety with the spot in 3 missing. *microthyrus*, Mab. is the race from the Philippines. In Rhop Java the ♀ is figured as unmarked.)

**I. 82. Hyarotis.** The Flitters. (Plate 31).

1 (2a). Cilia broadly chequered white and brown; antennæ white banded before apiculus. Above dark brown; upf with white hyaline spots, across cell, in 1 (non-hyaline) against v1, discal in 2 and 3, apical 6–8. Below dark brown, outer half dark ochreous, bearing centrally a broad diffused dark brown band; unf cell spot continued to costa and spot in 1 diffused: unh an irregular broken central white band from v1 across end cell to v8.

*a*. Upf spots small, those in cell and in 2 do not overlap.

*adrastus adrastus*, Cr. (38–48). The Tree Flitter. Ceylon, S. India. NR. (= *phoenicis*, Hew).

β. Upf spots larger, those in 2 and 3 overlapping.

**adrastus praba*. M. Kangra to Burma, Andamans, Siam, Hong Kong. NR.

(*meluchus*, Fruh is the race from the Malay Peninsular, Pulo Condor, Sumatra, Borneo and Java. *mindanensis* and *palawensis*, Fr., the Philippine races).

2 (1). Cilia uniform dark brown; antennæ plain brown. (White under club in ♀♀ and ♂ *pria*).

2 (3a). Unh base dark golden yellow. Upf and unf large hyaline white spot across cell, joined to a still larger spot in 2. Otherwise unmarked.

*basiflava*, DeN. (38–48). The Golden Flitter. S. India. R

3a (2). Unh unmarked.

3 (4). ♂ upf with a hyaline white discal band consisting of a large spot across cell conjoined to an equally large spot in 2, which extends (non-hyaline more or less into upper part of 1.

*pria*, Druce. (35–45). The Banded Flitter. Dawnas to S. Burma. Siam, Tonkin, Malay Peninsular and Islands. VR.

(= *albifascia*, M; *asawa* Fruh; *inornata*, El; *singularis*, Mab. This seems to be an extremely rare species and I have not seen a ♀, unless a ♀ specimen from Selangor is the true ♀; it has no spot in 1, a completely detached dot in 3 and apical dots in 6 and 8).

4 (3). ♂ unmarked dark brown above and below; ♀ with a hyaline white discal band consisting of large conjoined spot in 2 and cell, usually a conjoined or semi-conjoined spot base 3 and sometimes a conjoined non-hyaline spot in the upper part of 1.

**monteithii*, WM. (35–40). The Dubious Flitter. Cachar, Dawnas, Malay Peninsular and Islands. Philippines. ? Moluccas (Holland). VR. (= *noctis*, Stg.: *comoploea*, Swin.; *dissimilis*, Snell; *perfusca*, Mab.).

**I. 83. Itys.** The Brush Flitters. (Plate 31).

1 (2). Upf with small pale yellow hyaline spots, narrow spot across cell constricted in middle or divided in two, quadrate to nearly vertical linear spot in 2, small spot in 3 and apical in 6–7 or 8. Unf dorsum pale, diffused white discal spot in 1; apex F and all H dark purple washed in fresh specimens; unh bearing a very obscure dark central and postdiscal broad band, small yellow spot in 2, 3, 4 and end cell, one or more of which may be absent.

**microstictum*, WM. (34–39). The Brush Flitter. Cachar, Dawnas, Malay Peninsular (Pulo Ubin). Luzon, Mindoro. VR. (= *binghami*, Swin. and *biseriata*, Elwes).

2 (1). Above unmarked dark brown with a faint purple tinge, more prominent below. Uph costa and unh dorsum paler. ♀ paler and larger.

*iadera*, DeN. (32–36). The Dark Brush Flitter. Penang, Sumatra, Java and Borneo. VR. (= *ciliata*, Elwes.)

**I. 84. Zographetus.** The Flitters. (Plate 31).

Above dark brown with hyaline white spots on F; 2 cell spots (upper small and often absent), quadrate spot in 2 immediately under the cell spot, small spot in 3, apical 6 and sometimes 7, small non-hyaline spot in 1 in ♀ and ♂ of *satwa* against v1. Cilia greyish.

1 (2). Below basal half costa F and basal ⅔ H bright yellow, outer ⅓ H and apex F purple brown, paling outwardly. Unh small dark spot mid cell and mid 7.

**1. 84. Zographetus**—(*contd.*)

***satwa*, DeN. (30-36). The Purple and Gold Flitter. Kumaon to Burma, Siam, Malay Peninsular, Sumatra and Java. N&R. (*durga*, Plotz from Mindanao and Sumbawa is a race or allied species; it has a purple gloss, antennæ white below club and no glandular streaks in ♂).**

2 (1). Unf costa and apex and all unh ferruginous to ochreous (paler in ♀), bearing unh a more or less prominent discal row of purple brown spots in 1-7, a spot mid 7 and mid cell. Antennæ white banded before apiculus in ♀.

**α. Extremely variable in size, colour of underside, and spots unh, which are usually large and diffused, but may be separate and sharply defined, often upper discal spots absent.**

***ogygia ogygia*, Hew. (30-32). The Purple spotted Flitter. S. India. Sikkim to Burma, Malay Peninsular and Islands. R (=*flavipennis*, DeN.; *flavalum*, DeN; *ogygioides*, Elwes).**

**β. Unh dark yellow of a peculiar shade; lower discal spots coalesced to a very broad dark band, connected by dark veins to a broad dark marginal area.**

*ogygia andamana*, Evans. Andamans. R.

**1. 85. Isma. The Tufted Flitters. (Plate 31).**

Above dark brown with pale yellow detached spots upf; 2 spots in cell lower elongate, spot in 2 outwardly concave, small spot in 3, may be dot in 4 and apical in 6 and sometimes 7; ♀ may have a non-hyaline spot in 1 against vl. Unf dorsum white. Unh a more or less obscure discal row of dark spots in 1-6 and a spot end cell. Cilia dark brown at tornus H in ♂ and at apex F, elsewhere the long hairs grey or pale yellow.

1 (2). Comparatively small. Below dull dark brown, apex and costa F and all H more or less sparsely overlaid ochreous green scales.

*protoclea*, HS. (30-34). The Plain Tufted Lancer. Karens to S. Burma, Malay Peninsular, Java, Borneo, Banguey, Borneo, Pulo Laut. R. (= *iapis*, DeN. and *obscura*, Dist.).

2 (1). Comparatively large. Below purple brown.

**α. Below purple brown, the outer ⅓ F and lower ⅔ H greyish white, all H with a conspicuous purple gloss.**

*** *vulso bicolor*, Evans. (38-40). The Purple Tufted Lancer. Karens and Dawnas, Malay Peninsular. R.**

**β. Below purple brown, overlaid ochreous scales no purple wash, the dark spots unh in 2 and 3 may be white centred. Upf hyaline spot in 2 more quadrate.**

*vulso vulso*, Mab. Sumatra, Java and Bali. R.

**γ. Below with a feeble purple gloss on basal half H, otherwise rather as *protoclea*. The clasp of the genitalia is serrate on the upper edge, not plain as in rest.**

*vulso purpurascens*, El. Borneo, Pulo Laut. (=*binotatus*, El.).

(*sewa*, Plotz from the Celebes probably belongs to this genus).

**1. 86. Sepa. The Lancers.**

1a (4a. 6a). ♂ with only a discal brand from mid vl upf to base 3.

1 (2a). ♂ cilia at tornus H elongated as in *Isma*; brand upf angled at v2. ♂ upf no spot in 1 or in cell; a very narrow oblique linear pale yellow spot in 2, small spot in 3, may be a dot in 4, small spot in 6 and sometimes in 7. Below paler, but not overlaid ochreous scales, outer half of 1 pale; unh a small pale spot in 2 and indications of a spot in 4 end cell. ♀ paler, spots on F wider, may be 2 spots in cell; unf space 1 all dark. Cilia in ♂ dark ochreous, brown at tornus, dark brown in ♀.

*cronus*, DeN. (42-44). The Branded and Tufted Lancer. Malay Peninsular (Perak and Gunong Ijan), Sumatra and Borneo. VR.

2a (1). ♂ cilia at tornus not prolonged. ♂ brand upf not angled. ♂ upf nearly always a spot in 1, rhomboidal spot in 2, decreasing spots in 3 and 4, small spots in 6 and 7 and may be a dot in 8, 2 elongate spots in cell, lower linear; all spots white or very pale yellow. Uph cuneate hyaline spots in 2, 3 and 4. Below overlaid ochreous scales. Cilia ashy ochreous.

**1. 86. Sepa**—(*contd.*)

2 (3). ♂ upf spot in 1 rounded, not reaching v2. Below darker, spots equal, no spot in cell or in 1 and 5. ♀ spots in cell reduced or absent : uph spots small, round, spot in 4 may be absent.

*feralia*, Hew. (40–44). The Cicatrose Lancer. Peninsular Siam, Malay Peninsular, Sumatra, Java, Borneo, Pulo Laut. VR. (=*cicatrosa* and *umbrosa*, El. ; *indistincta*, Druce. The synonymy is doubtful ; all the species in the genus are very rare and it is very difficult to link the sexes).

3 (2). ♂ upf spot in 1 narrow, vertical, reaching v1 and may be divided by a black line. Below more ochreous ; unh spots larger may be a spot in cell and often small spots adjoining the spots in 2 and 4 may show above. ♀ spots reduced.

*fenestrata*, El. (36–39). The Fenestrate Lancer. S. Mergui, Malay Peninsular, Sumatra, Borneo, Pulo Laut. (= *concinna*, El.). VR.

4a (1a. 6a). ♂ with curved linear stigma behind the spot in 2 upf and an oval patch above basal ½ of v1.

4 (5). Upf spots white, large, arranged as in *feralia*, cell spots often conjoined. Uph ♂ very small discal spots in a curve in 2, 3 and usually 4 ; ♀ unmarked.

*dawna*, Evans. (38). The Dawna Lancer. Dawnas to S. Burma. VR.

5 (4). Upf spots yellow, arranged much as *feralia*, but very variable F and H. ♂ stigma may be absent.

*miosticta*, DeN. (42–44). The Cinnamon Lancer. Malay Peninsular, Java, Borneo. VR. (=*guttulifera* and *cinnamonea*, El.).

6a (1a. 4a). ♂ upf no seam, but with an oval patch above basal ½ of v1 ; spot in 2 is differently placed due to the absence of the seam, its inner edge in line with the inner edges of the cell spots ; spots yellow. Unh obscure series of black discal spots in 1–5. ♀ spots reduced and cell spots usually absent.

6 (7). Uph spots in 2–4 cuneate prominent, those in 2 and 3 inwardly pointed and reaching bases 2 and 3 ; may be spot in cell and unh in 5.

*inarime*, DeN. (36–38). The Cuneate Lancer. Mergui, Malay Peninsula, Sumatra, Java, Borneo, Pulo Laut, Phillippines. R. (=*zetus*. Mab. ; *malanga*, Druce ; *bipunctata*, El).

7 (6). Uph spots in 2, 3 and 4 small rounded, latter often absent. Smaller.

*bononia*, Hew. (26–32). The Baby Lancer. Karens to S. Burma. Malay Peninsula, Sumatra, Java, Borneo, Pulo Laut. R. (=*idyalis*, DeN).

**1. 87. Plastingia.** The Lancers. (Plate 32).

Above with prominent yellow or white spots (hyaline) upf ; more or less developed pale basal and costal streak F and discal area H, ochreous or greenish

1a (6a). F v2 origin much nearer base than the origin of v11 ; v5 bent down at origin. Upf always a hyaline spot in 4. Above markings and cilia bright yellow.

**Callineura Group.**

1b (5). Unh with purple white spots.

1c (4). Antennæ at least with the entire club yellow.

1 (2a). Uph tornus broadly yellow.

*vermiculata*, Hew. (40). The Vermiculate Lancer. Sumatra. VR.

2a (1). Uph tornus dark brown.

2 (3). Unf no purple white streak in 5.

α. Unh veins red. Upf cell spots one above the other, lower hardly produced towards base. Antennæ shaft yellow in ♂, club only in ♀.

*callineura burmana*, Evans. (39–42). The Red-Vein Lancer. Cachar to S. Burma. R.

β. Unh veins yellow. Upf lower cell spot prolonged towards base and conjoined to spot in 2. Antennæ as last.

*callineura perakana*, Evans. Malay Peninsular (Perak, Negri Sembilan, Pahang). R.

γ. Unh and apex unf with red veins. Upf cell spot as in last. Antennæ in ♂ and ♀ with the club only yellow.

*callineura callineura*, Fd. Sumatra, Java, Borneo.

**1. 87. Plastingia—Callineura Group—(*contd.*)**

3 (2). Unf with a purple white streak in 5. Uph veins yellow. Antennæ shaft yellow.

α. Upf cell spots conjoined or nearly so.

*latoia margherita*, Doh (36–40). The Yellow-vein Lancer. Upper Assam (Doh). Tenasserim (1♂ B.M.) VR.

β. Upf cell spots separate, lower nearer base.

* *latoia latoia*, Hew. Dawnas to S. Burma. Siam, Malay Peninsula, Sumatra, Java, Borneo and Labuan, Philippines. R.

4 (1c). Antennæ with only the apiculus yellow. Above like *latoia*, but smaller. Unh mostly yellow. Very variable.

α. Upf basal yellow area restricted.

*helena fruhstorferi*, Mab. (32). The Small Yellow-vein Lancer. S. Mergui, Malay Peninsula, Sumatra, Java, Batoe Is. R. (=*niasana*, Fruh.).

β. Above basal yellow area upf much more extensive.

*helena helena*, But. Borneo, Labuan, Pulo Laut. R. (= *natuna*, Fruh. *flavia*, Stg. is the race from the Philippines and ? Celebes).

5 (1b). Unh no purple white spots. Upf the yellow spot in 2 reaches base 2 all the discal spots from a broad continuous band. Unh orange with small black spots.

*aurantiaca*, El. (35–39). The Orange Lancer. Sumatra, Borneo, Pulo Laut. R. (Species allied to the above are *telesinus*, Mab. = *laenas*, Mab. Philippines with unh yellow green bearing feeble pale spots. *liburnia*, Hew, Philippines and Luzon, unh dark brown with prominent yellow spots).

6a (1a). F v2 from mid base and origin v11.

6b (11a). F v5 straight or nearly so. Upf no spot in 4. Unh with markings.

**Sala Group.**

6c (9a). Unh with a semi-circular row of small black discal spots, a round spot end cell and spots at base 2 and 7. Unf some dark spotting at the apex.

6d (8). Uph no prominent yellow area. Upf a rather obscure dark ochreous streak from base to middle over v1. Antennæ white ringed mid club.

6 (7). Antennæ shaft only chequered at extreme base. Upf lower cell spot larger than the upper spot; apical spots in 6 or 6 and 7; hyaline spots pale yellow. Uph in ♂ a recumbent tuft of shining dark brown hairs from base overlying cell. Below apex and costa F and all H dark grey brown with a strong purple wash. Tegumen with ears at the side.

* *sala*, Hew. (32–36). The Purple Lancer. Cachar to S. Burma. Malay Peninsular, Pulo Laut. R. (= *fuscicornis*, El.).

7 (6). Antennæ shaft chequered throughout. Upf lower cell spot no larger than the upper one and may be absent; no apical spots; spots white. Uph ♂ no tuft. Tegumen with spines at the side.

α. Below apex and costa F and all H pale yellow brown with a faint purple wash.

*submaculata kanara*, Evans. (32–36). The Maculate Lancer. N. Kanara. R.

β. Unh, etc. shining greenish grey.

*submaculata maculicornis*, El. Ataran Valley, Burma, Siam, Pulo Laut. VR.

γ. Below yellow green.

*submaculata submaculata*, Stg. Palawan.

8 (6d). Uph with a prominent yellow discal patch and upf with prominent yellow basal streaks. Unh yellow. Uph tornal area brown. Upf cell spots equal.

α. Uph yellow discal area divided by dark veins. Unh spots complete and diffused.

* *noemi noemi*, DeN. (35–40). The Spotted Yellow Lancer. Sikkim to Assam. VR.

β. Uph yellow discal area not divided by black veins. Unh markings mostly consist of narrow rings and may be incomplete.

*noemi tavoyana*, Evans. Karens. (Doh). Tavoy, Mergui. VR.

(Species allied to *noemi* are *similis*, El., Borneo, Pulo Laut, much smaller. *flavescens*, Fd. = *atala* and *samanga*, Fruh, Celebes, with the tornal area uph

**I. 87. Plastingia—Sala Group**—(*contd.*)

broadly yellow ; *viburnia*, Semp, Philippines, with unh prominently black veined)

9a (6c). Unh chequered all over with large black and yellow or white pale spots.

9 (10). Below pale spots white in ♂ and ♀. Above yellow markings obscure ; upf lower cell spot small or absent.

* *naga*, DeN. (33-38). The Silver Spotted Lancer. Assam to Burma, Malay Peninsular, Sumatra, Java, Borneo, ? Philippines. (= *valenia*, Fruh.). R.

10 (9). Below spots pale yellow. Above yellow markings prominent ; upf lower cell spot well developed.

*tessellata*, Hew. (33-40). The Straw spotted Lancer. Malay Peninsular, Sumatra, Java, Borneo, Philippines, Celebes. R. (= *eulepis*, Fd ; *palawata* Stg. ; *pellonia* and *mangolina*, Fruh.).

11a (6b). F v5 bent down at origin. Unh unmarked.

**Corissa Group.**

11 (12). Upf no spot in 4. Uph discal yellow area small or absent, cilia yellow. Below apex F and all H yellow, veins paler.

α. Above unmarked.

*corissa tytleri*, Evans. (30). The Plain Yellow Lancer. Nagas. VR.

β. Upf prominent discal yellow spots in 2, 3, apical in 6-7 and 2 cell spots, non-hyaline spot in 1.

* *corissa corissa*, Hew. (30-45). Dawnas to S. Burma, Malay Peninsular, Sumatra, Java, Borneo, Pulo Laut. R. (= *indrasana*. El ; *drancus*, Plotz. ; *latonia*, Stg. ; *patmapana*, Fruh.).

12 (11). Upf with a spot in 4, over the spot in 3, no spot in 1 and basal streak obscure ; spots yellow. Uph plain. Below apex F and all H overlaid dark ochreous scales, unmarked.

*pugnans*, DeN. (34-36). The Pugnacious Lancer. Dawnas to S. Burma, Malay Peninsular and Islands. R.

(*extrusus*, Fd, Aru is a peculiar species, mimicking *Allora doleschalli*).

**I. 88. Lotongus.** The Palmers. (Plate 32).

Above with prominent hyaline spots on F.

1a (3a). Unh no yellow band. Upf spots white.

**Calathus Group.**

1 (2). Upf hyaline spots large and conjoined, spot in 3 to base 3, non-hyaline yellow spot in 1 against vl, apical spots 6-8 present or absent. Uph costa and apex to v7 whitish yellow. Unf discal spots continued to costa and broadly to dorsum. Unh termen white from apex to mid 3.

* *calathus*, Hew. (44-46). The White Tipped Palmer. Tavoy to S. Burma, Malay Peninsular, Sumatra, Java, Borneo. Palawan R. (= *zalates*, Mab. and *aliena*, Stg.).

2 (1). Upf hyaline white spots smaller and completely separated. ♂ double (♀ single) spot in cell ; ♂ quadrate (♀ oblique) spot mid 2, small spot in 3, no apical spots and only obscure spot in 1 in ♀ ; spots may be even more reduced. Unf discal band continued to costa and a large white spot in 1 ; unh apex may be yellowish white.

*schædia*, Hew. (42-45). The Plain Palmer. Malay Peninsular, Sumatra, Nias and Borneo. R. (= *parthenope*, Weymer ; *traviata*, Plotz ; *surus*, Mab. and *maculatus*, Dist).

(*taprobanus*, Plotz. = *mythecoides*, DeN. is an allied species from the Celebes with a prominent white band unh).

3a (1a). Unh with a conspicuous yellow band.

**Avesta Group.**

3 (4a). Uph tornus and dorsum yellow joining a broad central yellow area ; unh central yellow band very broad, from vl to costa, parallel to termen Upf double white spot in cell, spot mid 2 and a spot in 3 against its outer edge, apical spots in 6-8. Unf apex paler, cell spot joined to costa by a yellow area. Antennæ club white below. Resembles *Hasora schonherri*.

**I. 90. Acerbas**—(*contd.*)

*duris duris*, Mab. Philippines. R. (= *mabillei*, Stg).

3 (2). Upf 2 spots in cell well behind the spot in 2. Unh band glistening white, very broad. Uph ♂ white band only to v1, thence obscurely whitish to v4 ; in ♀ white band to v4. Body white above and below. Unf mid dorsum whitish.

* *nitidifasciata*, Elwes. (48-50). The Silver Palmer. Dawnas to S. Burma, Selangor, Borneo, Labuan. R.

(*albimedia*, Joicey and Talbot is a very distinct species from Dutch New Guinea).

**I. 91. Zea.** The Silver and Yellow Palmer.

Above dark brown. Upf prominent yellow separate hyaline spots ; across cell from origin of v3 ; in 2 ¼ along v2, in 3 ⅓ along v3. Uph costa before apex whitish. Unh dark brown with a very broad silver band from mid v1 to costa behind apex, 5 mm. wide.

*mytheca*, Hew. (48). Victoria Point, S. Burma, Malay Peninsular, Sumatra and Borneo. VR.

**I. 92. Eetion.** The Whitespot Palmer.

Above dark brown with hyaline spots F and H ; upf with an upper cell spot, large spot in 2 vertically below it, small spots in 1, 3 and 4, apical dots in 6-8 and sometimes 2 dots in 5. Uph a transverse row of hyaline white spots separated by veins in 1-4 ; dorsum dull whitish. Unh basal area to v8 shining white from the base to the discal spots.

*elia*, Hew. (50). S. Mergui, VR. Malay Peninsular, Sumatra, Borneo. Plotz ; *ayankara* and *magniplaga*, Fruh.)

**I. 93. Unkana.** The Hoary Palmer. (Plate 32).

1 (2). Above ♂ dark brown, ♀ black. Upf large hyaline spots, pale yellow in ♂ and white in ♀ ; in cell behind origin of v3, in 3 ¼ along v4 and in 2 midway between ; subapical spots in 4 and 5 near margin and apical in 6-8. Uph plain in ♂, in ♀ lower discal area to base and dorsum white. Unf ♂ apex broadly paler, veins black, some purple white scales and violet washed ; in ♀ large whitish suffused spots before termen in 3, 4 and 5. Unh in ♂ dark brown with obscure purple wash, veins black, whitish central area extending to base 7, obscurely paler between veins near termen ; ♀ with a broad transverse white area crossed by black veins from base to below apex.

* *attina*, Hew. (64-72). The Hoary Palmer. Bassein to S. Burma, Malay Peninsular and Islands. NR. (=*batara*, Dist.; *latreillei*, Fd.; *cruda*, HS.; *anitta*, Plotz. The Philippine race is *mabillei*, Stg.=*palawana* and *mindasensis*, Fruh.)

2 (1). Above dark brown with large conjoined bright yellow hyaline spots on F, forming a broad central band from 1-3 and cell, apical spots in 6-7. Unf lower part of spot in 1 whitish and unh margin broadly paler.

*harmachis*, Hew. (53-55). The Orange Palmer. Malay Peninsular, Sumatra, Banka. VR (=*staudingeri*, Dist.)

**I. 94. Hidari.** The Palmers. (Plate 32).

1 (2*a*). Upf with large conjoined hyaline yellow spots as in *harmachis*, no apical spots. ♂ upf a seam from mid 1 to base 4. Unf apex grey powdered and unh 2 grey bands as in *Gangara thyrsis*. Antennæ yellow banded below club.

*ozias*, Hew. (54). The Javan Palmer, Java. VR.

2a (1) Upf hyaline spots on F pale yellow, well separated ; spot across cell, in 2, 3, semi-hyaline spot in 1 against v1, apical spot in 6 only. No ♂ brand.

2 (3.4). Upf spot in cell with its centre against the origin of v3 ; spot in cell ¼ along v4 ; spot in 2 not reaching origin of v3, well separated from cell spot, its inner edge in line with the centre or outer edge of the cell spot. Below dark brown, costa and apex F and all H pale brown with a faint purple wash ; some rather obscure small dark spots about apex F and discal spots in 1-6 on H as well as a pale yellow spot unh in cell under the origin of v7.

* *irava*, M. (54-58). The Greasy Palmer. Burma, Malay Peninsular and Islands. NR. (=*hypoepa*, Hew ; *thrax*, Hub in errore).

**I. 88. Lotongus—Avesta Group** –(*contd.*)

*onara*, But. (42-44). The Yellow Palmer. Sumatra, Borneo, Palawan VR. (=*excellens*, Stg. and *adorabilis*, Fruh.).

4a (3). Uph dorsum dark brown. Below chocolate brown, dorsum F much paler ; unf cell spot continued to costa by a yellow spot ; unh a narrow yellow band, from basal ¼ dorsum to mid costa, interrupted at v1a. Upf no apical spots.

4 (5). Upf 2 spots in cell, conjoined to a single spot in ♀ ; large spot in 2, prolonged in ♀ under cell spot, prominent spot in 3, non-hyaline spot in 1. Uph tornal cilia yellow and central yellow area from v1-7. Unh band rather broader and expanding to costa, slightly curved. H excavated at v1 and lobed. Below purple washed and veins pale. Hyaline spots white.

*sarala*, DeN. (45-50). The Yellowband Palmer. Assam to Bhamo, Tonkin, W. China. VR.

5 (4). Upf only rounded pale yellow spots in 2 and 3. Uph unmarked and cilia uniform dark brown. Unf an upper spot in cell. Unh band narrow and straight, nearer base. Below chocolate brown, no purple wash and veins not pale. H termen even.

*avesta*, Hew. (44-48). The Malay Yellowband Palmer. Dawnas to S. Burma, Borneo, Pulo Laut. VR. (=*tamiata*, Stg. *quinquepuncta*, Joicey and Talbot is a well marked race from Hainan).

**I. 89. Zela.** The Redeye Palmers.

Above dark brown with white or pale yellow hyaline spots on F. Uph unmarked, cilia yellow, broadly so at tornus.

1 (2). ♂ upf with a broken black seam from mid v1 to just after base 3, where it meets a small glandular patch at base 3, angled at v2 ; uph disc clothed long hairs. Upf single lower cell spot in ♂, double in ♀, oblique spot mid 2, spot in 3 and apical in 6. Unf dark brown, costa overlaid dark ochreous scales and dorsum in ♀ pale brown, in ♂ overlaid centrally pale ochreous scales. Unh chestnut brown, basally paler, a pale yellow spot end cell.

α. Larger. Upf and unf outwardly conspicuously paler.

*zeus optimus*, Fruh. (46-47). The Redeye Palmer. Assam. Tavoy. VR.

β. Smaller. Upf and unf not paler outwardly. Unf unmarked.

*zeus zeus*, DeN. (44-46). Sumatra, Pulo Laut, Borneo, Mindoro.

2 (1). ♂ upf no brand ; uph a conspicuous tuft of brown hairs from near base cell overlying cell ; the cell H unusually short=¼ wing and lower angle bent up at origin of v3 at right angles to v6, v4 arising half-way between, no trace of v5, v2 opposite v8 ; F dorsum bowed ; unf dorsum and uph costa polished. Above brown, white hyaline spot near base 3 and a narrow irregular spot below it in 2. Below paler, dcv F and H marked pale yellow and apex F paler.

*zenon*, DeN. (45-47). The Tufted Redeye Palmer. Borneo, Pulo Laut. VR.

**I. 90. Acerbas.** The White Palmers. (Plate 32).

Above dark brown with white hyaline spots F and a white central band H ; F comparatively small spots in 2 and 3, and apical in 6-8, no spot in 1. H lobed and excavated at v1 and tornal cilia white. Unh broad white central band continuous from mid dorsum to costa before apex.

1 (2*a*). Unh white band connected broadly to dorsum in space 3. Upf no cell spot and unf no spot in 1. Uph white band to v4. Unh white band silvery. Body white below, dark brown above.

* *anthea*, Hew. (30-43). The White Palmer. Dawnas to S. Burma, Siam, Malay Peninsular, and Islands. R. (=*tagiadoides*, Fruh, *ciliatus*, But).

2*a* (1). Unh white band not connected to termen.

2 (3). Unf single upper spot in cell immediately over the spot in 2. Unh band dull white. Uph white band to v6. Unf large white spot in 1 in ♀. Body whitish above, striped below.

α. Uph white band illdefined anteriorly. Below no purple wash. Unh white band uniform, contracted at costa.

*duris martini*, Dist. (38-48). The Dull White Palmer. Borneo, Pulo Laut, Sumatra. R.

β. Uph white band sharply defined. Below purple wash over the dark areas, especially at apex F. Unh white band yellow in 7 and 8, not contracted at costa.

**l. 94. Hidari**—(*contd.*)

3 (2-4). Above as *irava*. Below pale yellow, unh evenly striated, a brown streak near costa and near dorsum.

*bhawani*, DeN. (56). The Veined Palmer. Arracan Coast. VR.

4 (2.3). Upf discal spot in 2 shifted in to the origin of v3, joining cell spot. Unh spot in cell white, smaller. Spot in 1 F more upright and diffused below. Below darker, dark spots obscure or absent.

*doesoena*, Martin. (55–58). The Sumatran Palmer. Sumatra. VR.

**l. 95. Pirdana.** The Green Palmers. (Plate 32).

Above unmarked, no hyaline spots.

1a (3). Antennæ plain black ♂ above dark brown ; ♀ with basal ½ F and ½ H dark metallic green.

1 (2). Below dark brown, veins broadly green on costa and apex F and all H ; dorsum F pale brown in ♂ whitish in ♀. Uph tornus narrowly orange in ♂, broadly so in ♀.

* *hyela*, Hew. (40–55). The Green striped Palmer, Assam to Burma. R. S. China, Hainan, Siam, Malay Peninsular and Islands, Palawan. (=*rudolphii*, El. and DeN.; *scanda*, Fruh.)

2 (1). Below uniform rather dull dark green, unstriped, dorsum F pale and space 1 F and H purple. Uph tornus narrowly orange.

*distanti*, Stg. (50). The Plain Green Palmer. Karens to S. Burma, R. Malay Peninsular, Sumatra, Nias, Borneo and Java (=*niasica*, Fruh ; *pavona*, DeN. *ismene*, Fd. = *sargon*, Mab. is an allied species with a dark green underside and pale veins from the Celebes).

3 (1a.) Antennæ shaft white above to base club and club white banded before apiculus. ♂ above dark brown, bases shining metallic green, elsewhere purple washed. Below as *distanti*. Uph tornal orange area broad, reaching v4.

*albicornis*, El. (50). The Albicorn Green Palmer. Borneo. VR. (Allied species are—*tiacellia*, Hew, Aru and New Guinea—*albidiscus*, Joicey and Talbot, Schouten Is. New Guinea).

**l. 96. Cretosa.** The Nonsuch Palmer.

Above very dark brown, ochreous hairs at bases and on body and dorsum F ; small pale yellow white hyaline spots F and H. Upf 2 spots in cell, spots in 1, 2, 3 and apical 6–8 ; uph spot in cell, 2, 3, 6 and mid 7, tornal cilia broad yellow terminal border from dorsum to v3 ; unh terminal yellow border from tornus to just above 4 and angled inwards in 2. ♀ spots above larger.

α. Unh yellow border comparatively narrow.

*cyrina parca*, DeN. (46–48). Assam. VR.

β. Unh yellow border considerably broader.

*cyrina cyrina*, Hew. Borneo. ( = *meleagrina*, Stg.).

**l. 97. Gehenna.** The Swollen Aces. (Plate 32).

Above dark brown with pale yellow spots on F ; 2 small spots in cell (upper may be absent or minute), oblique narrow spot in 2 immediately under cell spots small spot in 2, 3 and apical spot in 6. In ♀ spots are larger, spot in 2 i, quadrate, small spots in 4 and 7 and non-hyaline spot in 1. Unf dorsum outer half white in ♀.

1 (2). Unh unmarked. Below dark brown, costa F and all H overlaid sparse yellow scales. H scv and v8 hair-pinwise.

*greæ*, DeN. (35). The Plain Swollen Ace. Malay Peninsular (Bukit Tanga), Sumatra. VR.

2 (1). Unh marked with a series of small dark discal spots. H v8 and scv normal.

α. Below costa and apex F and all H overlaid ocherous green scales, leaving on H very obscure dark discal spots in 1–6 and cell ; in ♀ the spot in 2 is white. ♂ uph greenish hairs on disc.

* *abima dawna*, Evans. (35). The Spotted Swollen Ace. Dawnas to Mergui. VR.

β. Below clothed greyish yellow scales ; unh with prominent dark discal spots in 1–6 increasing in size posteriorly and a spot in cell.

*abima angulifera*, El Mindoro. VR.

**I. 97. Gehenna**—*(contd.)*

γ. Upf cell spots conjoined and above clothed ochreous hairs ; unh with 5 ill-defined brown spots.
*abima abima*, Hew. Macassar. Celebes.

**I. 98. Pithauria.** The Straw Aces. (Plate 32.)

Above dark brown ; pale yellow (♀ white) spots on F, double in cell, mid 2 in 3 and apical 6–7 (rarely 8) ; the spots in the ♂ of the first 2 species may be much reduced or entirely absent, especially those in the cell, but are prominent below.

1a (3). Unh no prominent pale spots and no brand in ♂.

1 (2). ♂ base and dorsum upf and all H except for the broad and dark border clothed straw coloured hairs, dense on H. Unf area mid dorsum to cell and v2 pale yellow. Below brown, apex and costa F and all H clothed greyish ochreous scales ; obscure indications of spots unh.
*straminei pennis*, WM. (44–50). The Light Straw Ace. Sikkim to Burma (Tavoy), W. China, Malay Peninsula, Borneo, Sumatra. NR.

2 (1). ♂ darker, clothing of greenish hairs above and ochreous scales below. Unf no pale area mid dorsum ; unh pattern not quite so obscure.
*murdava*, M. (36–50). The Dark Straw Ace. Sikkim to Burma. Malay Peninsula, Borneo. NR.

3 (1a). ♂ with brand upf. Above ♂ base and dorsum F and all H except costa clothed greenish hairs. Below dark brown costa and apex F and all H closely overlaid golden ochreous scales ; unh small pale yellow spots in 2, 3, 6 and base 7 ; may be dots in 4, 5 and 1. ♀ unf small white spot in 1 against v1 and tornal spot in 1 ; unh chestnut brown with large silvery white conjoined discal spots in 1–5, where it joins a broad silver streak reaching to base 6, above which there is another silver streak filling most of 7, also a silver spot in 1 under cell the markings unh are very variable and sometimes the spots are as small as in the ♂.
* *marsena*, Hew. (44–50). The Branded Straw Ace. Assam to Burma, Malay Peninsular, Tonkin, Sumatra, Nias, Java and Borneo. NR. (= *aitchisoni*, WM. and DeN. ; *glauca*, Stg. ; *uma*, DeN. ; *ornata*, Fd. ; *subornata*, Plötz.). (The ♀♀ of these 3 species appear to be extremely rare).

**I. 99. Halpe.** The Aces. (Plate 32).

Above dark brown ; upf normally 2 cell spots, 2 discal (2 and 3), 3 apical (6–8) ; cell spots may be conjoined or one or both may be absent and the apical spot in 8 is often absent (*hieron* is spotless). ♀ usually has a non-hyaline spot in 1 (present in ♂ *masoni*) ; spots white to golden. Uph unspotted (except *submacula*), but there may be a yellow patch on the disc (*decorata*, *honorei* and *masoni*) or more usually dull ochreous hairs. Below dark brown, costa and apex unf and all unh overlaid differently coloured scales ; unf apex may be spotted ; unh may be plain, marked with dark or pale spots or with a pattern. The ♂ brand is missing in *honorei*, *masoni*, *astigmata* and *hieron* ; it may be just a seam from v1 to base 3 or consist of 2 whitish pouches, v1 may be distorted and v2 bent up.

1a (27a). Upf (or at any rate unf) either 2 cell spots present or upper one is absent (individuals of *gupta* and the ♂ of *decorata* are aberrant).

1b (5a). Upf cell spots immediately over the spot in 2. Unf mid dorsum pale.

**Separata Group.**

1c (3a). Unh and apex unf unmarked, clothed dense dark ochreous scales. Upf cell spots conjoined.

1 (2). Above cilia prominently white, chequered brown at ends of veins. Unh olive ochreous.
*separata*, M. (35–37). The Chequered Ace. Kumaon to Manipur. R.

2 (1). Above cilia brown, very obscurely chequered. Unh dark ochreous.
* *grahami*, Evans. (33–36). Graham's Ace. Assam, Manipur. R.

9a (1c). Unh marked.

3 (4). Unh yellow, small black discal spots in 2, 3 and 7, upf cell spots usually conjoined.
*subflava*, Leech. (29–32). The Chinese Yellow Ace. W. China.

**I. 99. Halpe—Separata Group—(*contd.*)**

4 (3). Unh dark purple brown, with an irregular white basal area, extending to centre of wing. F cell spots separate.

*hyrtacus*, DeN. (32–36). The White-banded Ace. Coorg, N. Kanara. VR.

5a (1b). Upf cell spots well behind the spot in 2.

5 (6a). Unh veins conspicuously pale ; chequered irregularly with dark brown spots on a whitish ground, discal spot in 4–5 being very large. Palpi white below. F cell spots separate. Unf whitish streak mid dorsum.

**Albipectus Group.**

*albipectus*, DeN. (28–30). The Silverbreast Ace. N. Shan States to S. Burma. NR.

6a (5). Unh veins never pale.

6b (19a. 26). Unh unmarked or with pale streaks or spots ; not with dark spots nor with a pale continuous band.

6c (14a). Cilia not chequered at ends veins uph.

**Varia Group.**

6a (9a. 13). Cilia uph bright ochreous throughout. ♂ upf brand consists of 2 whitish pouches.

6 (7. 8). Unh unmarked, overlaid greenish ochreous scales. Upf spots yellow, cell spot double.

*aina*, DeN. (36–38). The Garhwal Ace. Garhwal to Assam. R.

7 (6. 8). Unh densely overlaid ochreous brown scales ; silver dash in 2, long streak in 3, obscure spot in 4, very long streak in 6. Unf apex with submarginal yellow spots. Upf spots prominent, cell spot double.

*bivitta*, Ob. (33). The Silverstreak Ace. W. China, E. Thibet. R. (=*albivitta*, Ob.).

8 (6. 7). Unh ferruginous brown, very small white discal spots in 2 and 3, obscure spot in 6 and 2 small spots in 1. Upf spots small, cell spots separate.

*sitala*, DeN. (37). The Tamil Ace. Nilgiris and Animalais. VR.

9a (6d. 13). Uph cilia white or very pale yellowish.

9b (11a). Unh whitish discal spots in 2, 3 and 6 ; overlaid greenish ochreous scales. Upf spots white.

9 (10). Unh veins not dark ; spots obscure. ♂ brand as in *sitala* group. Upf spots may be absent, but show unf.

*gupta*, DeN. (36–40). The Olive Ace. Garhwal to N. Burma (Bernardmyo), W. China. R. (=*caenis*, Leech and *fusca*, Elwes).

10 (9). Unh veins prominently black ; spots very prominent. Upf upper cell spot often absent.

*varia*, Murray. (34). The Japanese Ace. Japan. NR.

11a. (9b). Unh marked with more spots than in 2, 3 and 6. Upf cell spots usually conjoined.

11 (12). Of small size with rounded wings. Unh overlaid ochreous brown scales ; very obscure series of discal yellow spots in 2, 3 and 6 and a postdiscal series in 1–5. F v2 much bent up at origin. Palpi more porrect.

*blanchardi*, Mab. (30). Blanchard's Ace. W. China.

12 (11). Larger, wings more pointed. Unh greenish ochreous, obscure whitish spots in 2, 3 and 6 and a pale subterminal macular band (described thus but figure shows a continuous discal row of yellow spots 1–6 and no subterminal band).

*debilis*, El. (34). Elwes' Ace. Assam (Tring. Mus.). VR. (I have not been able to recognize this species. ?=*baileyi*, South S. E. Thibet, unh reddish ochreous brown, with a post median series of yellow spots in 3–7).

13 (6d. 9a). Uph cilia cinereous. Unh and apex unf overlaid very dense ochreous scales ; unf pale yellow submarginal streaks at apex ; unh obscure yellow discal dashes in 2, 3, 6 and 7 as well as an obscure series of submarginal dashes in 1–6. Upf spots pale yellow, cell spots separate.

*thandaunga*, Evans. (38–41). The Thandaung Ace. Karen Hills, 2 ♂♂ in April 1914. Resembles a *Pithauria*.

14a (6c). Uph cilia prominently chequered. Upf cell spot usually double.

**I. 99. Halpe—Varia Group**—*(contd.)*

14b (18). Unh with more than one pale spot or streak.

14 (15a). Unh no spot base 7; ochreous brown with whitish discal streaks in 2, 3, 5 and 6 and silvery streaks in 1, 2 and 3. Upf cell spots separate. Unf no pale marking in 1.

*latris*, Leech. (35). Leech's Ace. W. China. VR. (=*perbella*, Hering, China, upf lower cell spot elongated towards base, unh 2 long pale streaks from base, some discal and submarginal markings or pale streaks, 29 mm).

15a (14). Unh more or less prominent pale spot base 7. Unf a pale marking in 1 and submarginal spots at apex.

15b (17). Unh very dark brown, markings white. Unf pale streak in 1 nearly reaching to termen.

15b (17). Unh markings consist of small dots and are very variable; the series is discal spots in 2-6 and 2 spots in 6 also an obscure submarginal series. ♂ no brand.

*astigmata*, Swin. (35–40). The Southern Spotted Ace. Coorg, N. Kanara. NR.

16 (15). Unh markings larger and more constant, similar, but only a single large spot in base 7 in addition to the submarginal spots. ♂ with brand. Uph white spots in 2, 3 and 4 show through obscurely from below.

**cerata*, Hew. (35–40). The Northern Spotted Ace. Sikkim to Karens. NR.

17 (15b). Unh ochreous brown with very large numerous yellow markings; discal and submarginal markings conjoined in 4-5, cell yellow and large spot beyond, also a double basal streak in 1. Unf short pale dash mid 1 against vl. Uph prominent whitish hyaline spots in 2, 3 and 6. Wings produced.

*submacula*, Leech. (42). The Chinese Spotted Ace. China (Chang Yang), Tonkin, Formosa.

18 (14b). Unh bright ochreous brown, single white spot in 6 and very obscure traces of darker diffused discal markings. Unf traces of a submarginal apical fascia and a very small spot in 1 against vl. Uph cilia cinereous, chequering rather obscure.

*hyrie*, DeN. (32–37). DeNicéville's Ace. Sikkim to Shan States. R. (I have a ♂ from S.E. Thibet which has a plain underside and the cilia are unchequered).

19a (6b). Unh with dark spots.

19b (24a). Uph cilia not white.

**Masoni Group.**

19c (21a). Uph unmarked, cilia, dull ochreous brown, broadly chequered at ends veins.

19 (20). F cell spot double. Unf apex and costa vivid rufous. Unh olive rufous with a series of more or less obscure black discal spots.

*lucasi*, Mab. (35). Lucas' Ace. Mupin, E. Thibet.

20 (19). F. cell spots small separate, all spots small. Unh bright ferruginous shining, base and margin darker, a discal row of small diffused black spots 2–7. Unf apex rather narrowly ferruginous.

*evershedi*, Evans. (36–37). The Palni Ace. Palnis and Travancore. VR.

21a (19c). Uph a discal yellow patch divided by dark veins.

21 (22a). Uph cilia dull ochreous broadly chequered at ends veins. ♂ unh dull chrome yellow, small black discal spots in 1–7; unf submarginal yellow spots at apex. ♀ unh ferruginous, spots obscure; unf apex ferruginous. Upf lower cell spot absent in ♀ and in ♂ continued towards the base. ♂ with brand.

* *decorata*, M. (30–36). The Ceylon Ace. Ceylon R.

22a (21). Uph cilia yellow, unchequered. Unh yellow with small black discal spots 1–7. ♂ no brand.

22 (23) Uph yellow area broad, diffused ♂ upf no spot in 1 or very obscure. Unh spots may be absent.

*honorei*, DeN. (30–36). The Madras Ace. S. India to N. Kanara. R

23 (22). Uph yellow area narrow and sharply defined. ♂♀ upf a double spot in 1.

* *masoni*, M. (28–34). Mason's Ace. Chin Hills to S. Burma. Tonkin. ? Philippines (1 ♂ B.M.) R.

24a (19b). Uph cilia white. Unf submarginal pale spots at apex.

**I. 99. Halpe—Masoni Group—(*contd.*)**

24 (25). Unh dark brown, sparsely overlaid whitish scales leaving dark veins and obscure dark discal spots. Upf spots small, spots in 2 and 3 not overlapping. Uph cilia pure white throughout. Wings produced.

*insignis*, Dist. (30–34). The White-fringed Ace. S. Mergui, Malay Peninsular, Sumatra, Borneo. VR.

25 (24). Unh densely overlaid pale ochreous scales, leaving a series of large dark discal spots and also a submarginal conjoined series. Upf spots large, spots in 2 and 3 overlap. Uph cilia grey white. Wings rounded.

*burmana*, Swin. (29–33). Swinhoe's Ace. N. Shan States to Ataran Valley. R.

26 (6b. 19a). Unh a broad continuous white band from mid 1 to apex, spots in 6 and 7 forming part of the band may be small; a spot in cell and near base 7, which may be absent; usually some small discal spots in 5 and 3 just beyond the band; variable number of small submarginal spots in 1–3. Unf prominent whitish submarginal spots from 2 to costa. Uph cilia grey white, faintly chequered.

**Moorei Group.**

*moorei*, Watson. (30–34). Moore's Ace S. India, Mussoorie to Burma, Andamans. NR. Hong Kong, Annam, Siam, Sumatra, Borneo, Bazilan, Jola Is. Celebes. (= *teliga*, Swin, *beturina*, *bazilana and joloana*, Fruh. The Celebes form passes under the name *beturia* Hew and the type in the B. M. = *moorei*, but Hewitson's description applies to the insect Elwes redescribed as *majuscula*, No. 39).

27a (1a). F either a single upper spot in cell or none.

27b (31a). Antennæ above white banded below club.

**Zema Group.**

27 (28a). Unh prominent continuous white discal band from mid 1 to apex, no submarginal or other markings. Cilia above whitish at tornus F and H, turning brown towards apex.

α. Large. Upf spots large, those in 2 and 3 overlap. Unf with submarginal apical spots. Unh clothed brown ochreous scales; discal band very wide, 2½ mm. Upf 3 apical spots.

* *zema zema*, Hew. (32–37). The Banded Ace. Sikkim to S. Burma, Malay Peninsular. NR.

β. Smaller and darker. Upf spots smaller, those in 2 and 3 separate. Unh discal band narrow, 1 to 1½ mm. Unf submarginal apical spots obscure. Upf 2 apical spots.

*zema ormenes*, Plotz. Described from Nias. Flies in S. Mergui as a race or variety of typical *zema*, which seems to occur with it (possible races are *vilasina*, Fruh., Sumatra; *vistara*, Fruh., Java; *mahapara*, Fruh., Philippines).

28a (27). Unh no white band.

28a (30). H termen rounded at tornus.

28 (29). F spots prominent, yellow, those in 2 and 3 overlap. Cilia pale to dark ochreous. Below apex F and all H overlaid ochreous brown; unh unmarked or with very obscure postdiscal yellow spots, that in 1 being largest.

*kumara*, DeN. (32–36). The Plain Ace. Sikkim to Naga Hills. R. (=? *perfossa*, South, S.E. Thibet).

29 (28). F spots small, white, those in 2 and 3 separate. Cilia white on H and brown on F. Below apex F and all H rather dark brown, with more or less prominent post discal small white spots.

*fasciata*, Elwes. (35). The Bornean Ace. Borneo. VR.

30 (28a). H termen excavated before tornus, wings produced. Upf spots white, those in 2 and 3 overlap. Unh and apex unf olive brown. Unf traces of a pale fascia; unh obscure row of black postdiscal spots. Cilia brownish white on H, brown on F.

*knyvetti*, Elwes. (32–90). Knyvetts' Ace. N. Kanara, VR. Sikkim to S. Burma, NR. Sumatra.

31a (27b). Antennæ above not white banded below club.

**I. 99. Haipe—Zema Group**—(*contd.*)

31b (33a). Unh no pale central band. Cilia whitish H, darker on F, unchequered.

31 (32). Upf with spots. Unh with discal black spots which may be outwardly bordered by obscure pale spots. Tegumen hooks pointed and simple, not forked or truncate.

α. Upf often with a cell spot; spots in 2 and 3 overlap, 2 or 3 apical spots. Unh ochreous brown, variable. Unf obscure pale submarginal fascia. Tegumen hooks short.

*sikkima, sikkima*, M. (30–36). The Sikkim Ace. Sikkim to Dawnas. NR. Malay Peninsular, Sumatra, Borneo. (? = *selangora*, Swin, Selangor).

β. Upf cell spot absent; spots in 2 and 3 small, only one apical spot. Rather pale brown above as *hieron*. Tegumen hooks long, longer than tegumen.

*sikkima palawea*, Stg. Palawan. (*sikkima* probably occurs elsewhere, but is difficult to recognize).

32 (31). Upf spotless or only a very faint discal spot in 2. ♂ no brand. Very pale brown above. Unf discal and 1 apical spot show. Unh and apex unf olive brown, traces of a pale submarginal fascia. Tegumen horns truncate.

*hieron*. DeN. (34). The Pallid Ace. Sumatra.

33a (31b). Unh in well marked specimens a white or yellowish central band, divided by dark veins, from mid 1 to apex; spot in 4–5 large; submarginal row of pale spots unf and unh; very variable and there may appear to be two pale areas separated by a continuous row of dark discal spots. Tegumen hooks always truncate, forked or with a side projection (in *sulphurifera*).

33b (37a). Unf submarginal row of spots do not extend into 1, nor is there any pale patch in 1 beyond the band.

33c (36). Tegumen hooks truncate at ends.

33d (35). Genitalia clasp double toothed.

33 (34). H cilia whitish, prominently chequered on F.

α. Small. Unh central band whitish, prominent, continuous.

* *homolea ceylonica*, M. (30–34). The Indian Ace. Ceylon, India. NR.

β. Large. Unh central band very variable, never continuous and often absent.

* *homolea homolea*. Hew. (31–32). Sikkim to Karens. Singapore (= ? *veluvana*, Fruh. W. Java. *homolea* was described from Singapore and until its genitalia are examined its identity will remain in doubt).

34 (33). Above cilia F and H greyish brown, unchequered.

α. Below vinous brown, band and spots obscure. Upf dark, spots small, no cell spot, one apical spot, spot in 2 crescentic.

*egena egena*, Fd. (30–35). The Dubious Ace. Ceylon VR. (= *brunnea*, M).

β. Smaller. Unh very variable, resembling *homolea*.

*egena aucma*, Swin. Assam to Tavoy. C. (= *perara*, *marta* and *wantona*, Swin; ? *kusala*, Fruh, S. Annam).

35 (33d). Genitalia clasp plain.

α. Identical with *aucma*, only to be distinguished by the clasp.

*auriferus pelethronix*, Fruh. (30–34). The Similar Ace. Tavoy to S. Burma. NR. Java. R.

β. Cilia more ochreous. Spots F small, none in cell, only one apical spot. Unh central band prominent, markings bright ochreous yellow.

*auriferus auriferus*, El. Nias. R. (= *haxis*, DeN.).

30 (33c). Tegumen forked and tips pointed; clasp as *homolea*. Cilia as *aucma*. Unh ochreous yellow markings.

*flava*, Evans. (30–34). The Tavoy Sulphur Ace. Tavoy to S. Burma. NR.

37a (33b). Unf with a pale marking in 1.

37 (38a). Unf pale marking in 1 discal, a spot across 1 just beyond the brand. Uph clothed long grey hairs. Upf cell spot obscure, 2 apical spots. Unh band pale yellow, prominent.

*sulphurifera*, HS. (34–38). The Sulphur Ace. Philippines and Sulu Islands. R. (= *luteisquama*, Mab.).

38a (37). Unf pale markings in 1 marginal, an extension of the marginal fascia.

**I. 99. Halpe—Zema Group**—(*contd*)

38 (39). Unh markings yellow, prominent. Upf spots complete.
*nephele*, Leech. (40). The Chinese Sulphur Ace. W. China. R.
39 (38). Unh markings much paler and diffused. Upf no cell spots and only 2 apical spots.
*beturia*, Hew. (36–38). The Celebes Sulphur Ace. Celebes. (=*majuscula* Elwes).

**I. 100. Oryna.** The Brush Ace. (Plate 32).

Above brown, dorsum and base F and most of H clothed yellow hairs; cilia pale ochreous H, brown F. Upf with yellow hyaline spots, double in cell lower part produced towards base, spot in 1 against v1, spot mid 2, in 3 and apical in 6 and 7. Unh and apex costa and cell unf more or less overlaid ochreous scales, tending on F to form a narrow yellow submarginal band and on H leaving a chequered pattern, which is obscure in pale specimens.
* *meiktila*, DeN. (30–34). Meiktila to Dawnas. R. (*siamica*, Riley and Godfrey, N. Siam, is a brighter race).

**I. 101. Sebastonyma.** The Tufted Ace. (Plate 32).

Above dark brown with pale yellow hyaline spots on F, figure of 8 spot in cell, spots in 2, 3 and apical 6–8. Uph a pale brown area mid disc. Below dark brown; unf mid dorsum whitish and a narrow pale yellow submarginal band. Unh broad yellow transverse band from near base at v1 to apex, a streak under v8 from origin to middle and an irregular submarginal line.
* *dolopia*, Hew. (30–34). Sikkim to Karens. NR.

**I. 102. Actinor.** The Veined Dart. (Plate 32).

Above brown clothed ochreous hairs on dorsum F and all H, cilia grey; semi-hyaline pale yellow spots F and H and the veins beyond the spots pale yellow. Upf double cell spot, continuous row 1–5 (double in 1) and conjoined apical spots in 6–8. Uph large spot across cell and postdiscal row 1–5. Below paler and all veins pale yellow; Unh spots dark edged and more extensive, a spot base 7, central row 1–7 across cell and postdiscal row from 1–6.
* *radians*, M. (34–42). Chitral to Kumaon at 4,000 feet R.

**I. 103. Capitha.** The Wax Dart. (Plate 32).

Above dark brown with yellow markings. Upf basal half costa yellow; a discal band 1–7, the part in 1 continued along v1 towards the base; lower spot in cell over origin v3, conjoined to the band; upper end of band incurved in 7. Uph costa yellowish white, yellow transverse broad discal band from 1–4. Cilia pale yellow H, chequered on F. Below entirely yellow except for a broad dark brown central band from base to middle on F and brown tornus F and H.
* *purreea*, M. (28–33). S. India, Sikkim to Burma, Andamans, NR. Malay Peninsular and Islands, Philippines, Celebes. (=*tympanifera*, M.; *verruca* and *lycorias*, Mab.; *alara*, Fruh.)

**I. 104. Niceviliea.** The Dartlets. (Plate 32).

Above dark brown with tawny markings. Upf lower part of tawny discal band central not distal as in *Padraona*, etc., i.e. spot in 1 is in the middle of 1, spot in 2 under the origin of v3 and spot in 3 reaches base 3; base and costa always dark; spot in 4 to base 4, may be a discal spot in 5 uniting the discal and apical spots in 6–8; spot near end cell against lower edge, conjoined to the spot in 2, but separated by a short black bar from the spot in 3, may be an upper cell spot above it. Uph tawny discal band, but no spot in cell or in 7.
1 (2a). Uph discal band narrow composed of small conjoined spots 1–5. Above very dark with dark orange markings. Upf spot in cell small, no upper spot or spot in 5. Below costa and apex F and all H overlaid dark ocherous green scales, discal band prominent on F but obscure on H.
*concinna*, E1. (30). The Tamil Dartlet. Palnis to Nilgiris. R.
2a (1). Uph discal band broad, continuous, markings bright orange.
2 (3). Below costa and apex F and all H yellow to orange, discal band on H and upper part of F only defined by black spotting.
* *gola*, M. (26–28). The Common Dartlet. Ceylon, S. India, Sikkim to Burma, Andamans. NR. S. China, Malay Peninsular and Islands,

**I. 104. Nicevillea**—(*contd.*)

Philippines and Celebes. (= *goloides* and *naranata*, M.; *locus*, *fabriolata* and *alfurus*, Plotz.; *taxilus*, *pseudolus*, *akar* and *grandis*, Mab.; *rajagriha*, *trishna* and *nipata*, Fruh.).

3 (2). Below dark brown, sparse ochreous scales on costa and apex F and on H, discal band F and H yellow, sharply defined and not edged black spots.

*paragola*, DeN. (26–28). The Malay Dartlet. Dawnas to Mergui, Sumatra, Malay Peninsular. Borneo. NR.

(The following belong to this genus—*augustula*, HS = *melanion* and *fitjiensis*, Mab. Oceania, Fiji and N. Australia—*wamba*, Plotz, = ? *tabla* Swin and *rudha*, Fruh. New Guinea, Aru and Key Is—*fulvomargo*, Joicey and Talbot, Dutch New Guinea).

**I. 105. Taractrocera.** The Grassdarts. (Plate 32).

Above dark brown with pale discal spots in 1–8, those in 4 and 5 shifted out; an upper cell spot beyond mid cell and a lower conjoined spot towards base. Uph spot mid cell and a discal series 1–7, upper two often absent.

1a (4a). Above markings white to pale yellow, narrow, separated by dark veins, spots in 4 and 5 upf remote from spot in 3 and 6.

1b (3). Unh a pale streak in mid 1 from base to termen, H spots in 1–4 in a straight line. Below spots white. Cilia whitish.

1 (2). Unh no spot mid 7 or base 7; spot in 6 large, nearly to base; spot in cell against upper edge; no spot in 1 but the white streak is very broad and prominent. Unh closely overlaid greenish scales, veins concolorous.

* *danna*, M. (25–30). The Himalayan Grassdart. Kashmir to Bhutan, NR.

2 (1). Unh spot mid 7 and obscure spot base 7; spot in 6 small; cell spot across cell; a spot in 1 and the white streak is narrow.

α. Unh closely overlaid dark ochreous scales, veins concolorous.

*maevius maevius*, F. (20–28). The Common Grassdart. Ceylon. C.

β. Unh overlaid dark ochreous to whitish scales, veins prominently pale.

*maevius flaccus*, F India, Burma. C. (= *sagara*, M.; *silhetica*, Plotz and *lineata*, Druce, Siam).

3 (1b). Unh no pale streak mid 1; spots pale yellow, discal row more curved, a spot mid 7, none base 7.

*ardonia*, Hew. (22–28). The Malayan Grassdart. Malay Peninsular, Sumatra, Borneo, Celebes. (= *sumatrensis* and *sangira*, Plotz).

4a (1a). Above markings tawny to orange.

4b (7a). Uph or unh a yellow spot mid 7.

4 (6a). Unf yellow cell spot not nearly as far back as the origin of v2.

α. Above spots small and separate. Upf usually no spot in 1, spots in 4 and 5 remote from those in 3 and 6, cell spot small and against upper edge. Uph spots in 4 and 5 remote from those in 2 and 3, spot in 6 often absent, no spot in 7. Unh more or less overlaid dark ochreous scales.

*ceramas ceramas*, Hew. (22–27). The Tamil Grassdart. Travancore to N. Kanara. NR on plateaux.

β. Above all markings much broader. Upf spots in 4 and 5 touching spot in 6, remote from spot in 3; always a spot in 1 Uph complete conjoined series 1 or 2–7, spot in cell prominent. Unh overlaid ochreous scales leaving blackish edges to the spots.

* *ceramas nicevillei*, Wat. N Kanara to Bombay. NR. (= *coras*, Auct nec Cramer).

γ. Above markings still more extensive; upf spots in 4 and 5 touch spots in 3 and 6. Unh completely overlaid ochreous scales, cell spot and elongate spot in 4–5 only visible by translucence.

*ceramas oberthuri*, El. Anaimalai Hills, S. India. VR.

δ. Above as *ceramas*, but uph spots in 2 and 3 touching spots in 4 and 5. Unh margin only yellow giving a prominent black spotted effect round the yellow spots.

*ceramas atropunctata*., Wat. Chindwin, N. Burma, Hong Kong, R.

5a (4). Unf yellow cell spot at least as far back as the origin of v2; upf always a spot in 1.

5 (6). Unh a yellow spot base 7. Above markings very broad and rather pale yellow; spots in 4 and 5 joined to spots in 2 and 3, cell and costa yellow.

**I. 105. Taractrocera**—(*contd.*)

Uph discal series complete and conjoined, cell spot large. Unh overlaid ochreous scales, leaving prominent small black spots. Apex F more produced than usual.

*flavoides*, Leech. (26). The Chinese Grassdart. W. China. R.

6 (5). Unh no spot base 7. But for the antennæ exactly like *Padraona mæsoides*. Unh yellow spots more or less separated by black veins.

α. Above markings narrow and all divided by black veins. Upf spots in 4 and 5 remote from spots in 3 and 6, cell spot only reaching to origin v2. Uph small cell spot, discal row 1–5. Below apex F narrowly and all unh overlaid sparse ochreous scales: unh spot mid 7 and small spot base 6.

*ziclea samadha*, Fruh. (22–28). The Veined Grassdart. Thayetmyo to S. Burma, Peninsular Siam. VR.

β. Above darker ochreous and markings broader; upf spots in 4 and 5 join spot in 3 but not spot in 6. Uph spot in cell obscure. Unh darker due to less ochreous scaling, veins towards termen distinctly darkened.

*ziclea tissara*, Fruh. Sumatra, Borneo, Java. (Fruh, separates the form from Java as *ikramana*. The Philippine race is *ziclea*, Plotz.=*luzonensis*, Mab., *sudodana*, Fruh. is the race described from Sumba).

7a (4b). Uph or unh no spot mid 7. Upf markings broad, spots in 4 and 5 almost completely overlapping the spot in 3; cell yellow. Uph spots coalesced.

7 (8). Upf spots in 4 and 5 just touching the spot in 6; the yellow cell area may be conjoined to the discal yellow band through the spot in 2. Uph usually a spot in 6; cell spot prominent or absent.

* *archias quinta*, Swin. (22–28). The Yellow Grassdart. N. to S. Burma, VR. Siam, Annam, Malay Peninsular, Borneo. (The following races have been described—*nigrolimbata*, Snell = *turica*, Plotz, Java; *godhania*, Fruh, Sumba; *kisaga*, Fruh, Lombok; *bavius*, Mab., Timor; *antalcidas*, Fd, Celebes; *archias*, Fd. Amboina; *udraka* Fruh, Dutch New Guinea).

8 (7). Upf spots in 4 and 5 overlapped by spot in 6, forming a compact band from dorsum to apex: the yellow area in the cell may or may not be joined to the discal yellow area in 2. Uph usually no spot in 6; cell spot present or not. Smaller than *archias*.

*aliena*, Plotz. (20–25). The Alien Grassdart. Java. (=*myconius* and *dschaka*, Plotz. and *dschalia* Mab. Probably *talantus*, Plotz from Celebes is an *aliena* race).

(The Australian group have a brand on upf and appear to comprise 3 species—*dolon*, Plotz., N. Queensland, for which the older name may be *rectivitta*, Mab.—*anisomorpha*, Lower, N. Queensland—*papyria*, Bdv., Australia=*agraulia*, Hew., *fumosa*, Guest., *celaeno*, Cox, *alix*, Plotz and *minimus*, Miskin).

**I. 106. Padraona.** The Darts. (Plate 32).

Above marked much the same as in the last two genera. Upf the discal band with the lower part distal, spot in 1 beyond the middle of 1 and spot in 2 beyond the origin of vein 3 never joining spot end cell.

1a (3a). Upf no spots in 4 or 5.

**Pettiagi Group.**

1 (2). Above dark brown with a purple sheen. No ♂ brand. Markings very narrow, dull yellow and separated by veins. Upf double elongate spot end cell, discal spots 1–3, apical 6–7. Uph discal spots 1–4, no cell or costal spot. Below as above, unf purple brown, apex and all unh overlaid dark ochreous scales; discal spots unh purplish. Tegumen simple, tapering to a blunt point; clasp simple, rounded.

*purpura*, Evans. (32). E. Java, 5,000 feet. The Purple Dart.

2 (1). Above no purple sheen. All markings narrow, orange, separated by veins. Uph discal band 1–5, no spot in cell or in 7.

α. Above generally paler and markings broader, cell spot obsolete upf. ♂ upf a continuous dark shining silky brand (disappears with petrol) mid 1 to base 3, behind the yellow discal band. Uph spot in 4–5 small and against outer edge of the spot in 3. Unf apex and all unh ferruginous; unf discal band and cell spot yellow; unh a spot in 6. Tegumen broadly bident; clasp with dense fine hairs at tip.

**I. 106. Padraona—Fettingi Group.**—(*contd.*)

*fettingi fettingi*, Mosch. (33). Sumatra (= *euria*, Plotz and *pavor*, DeN.)

β. Above darker and markings broader; cell spot prominent and prolonged towards base along mv. Uph discal spots in 2, 3 and 4–5 equal. ♂ brand black, hard to see (not disappearing with petrol), irregular, disconnected. Below much darker ferruginous, veins on H black, no spot in 6, traces of cell spot, sometimes basal and central spot in 7. Unf cell spot, discal band and apical spots yellow; unh spots very dark orange, but a yellow detached spot in 1.

*fettingi orfitus*, Mab. W. Java.

3a (1a). Upf always a spot in 4 and in 5.

3 (4a). ♂ Upf with a black brand behind the yellow discal band, continuous and narrow. Uph no costal spot in 7. Upf in ♂ the discal yellow band from 1–5 very straight and even width throughout, joining the outer edge of the spots in 6–8; in ♀ the lower part 1–3 is wider as usual; cell and costa all yellow to central black Y band in ♂, basal half dark in ♀; a dorsal streak from discal band to base in ♂ and a streak above it in 1 from inner edge of brand to base. Uph continuous broad discal band from 1–5, continued into 6 by a small inner spot; cell spot present. Below costa and apex F and all H rather pale yellow, discal band H defined by irregular narrow black edging. Tegumen simple, tapering to a blunt point, clasp simple rounded.

**Kobros Group.**

*kobros rectifasciata*, El. (29–32). The Branded Dart. Karens to S. Burma, NR. (*cakka*, Fruh. is the darker race from Java; *sravasta*, Fruh. from Nias and probably occurs on Sumatra; *kobros*, Plotz.=*procles*, DeN., occurs on Aru, Key, Mysol and Gilolo; the following are probably referable to *kobros—tranquilla*, Swin., Milne Bay. N. G.—*terranea* and *paceka*, Fruh., Dutch New Guinea—*dhamika* and *dipavansa*, Fruh., Waigou. The following species belong to this group with a brand upf from 1-4—*walkeri*, Heron, N. Australia—*heterobathra*, Lower, N. Australia and Key Is.).

4a (3) ♂ upf no brand from v1-4. Uph usually a costal spot mid 7 and a cell spot; unh also a spot base 7.

**Dara Group.**

(The examination of the genitalia has proved that the *dara* group contains a number of almost exactly similar species; numerous names have been published usually with inadequate descriptions; I have assigned these names as best I can so as to avoid the creation of more names; only a genitalia examination of the types will settle the matter of names finally.)

4 (5a). Upf no brand at all; cell and costa yellow to the dark Y band, may be a dark narrow basal streak in the cell; discal band confluent and touching the outer edge of the apical spots, spot in 5 overlaps the spot in 4. Uph discal band confluent, spots in 4 and 5 not advanced; spot in cell and mid 7. Tegumen broadly tapering and minutely bifid.

α. uph discal band usually continued into 6 by a short bar on inner edge towards spot in 7. Unf apex and all unh yellow, discal band defined by prominent small black spots; base H black dusted. Unf cilia obscurely chequered in ♂, prominently in ♀.

*phellus phellus*, Mab. (23–27). The Brandless Dart. Sikkim to S. Burma. NR.

β. Upf a narrow yellow discal streak over v1 from discal band to base. Uph no spot in 6. Below yellow scaling sparser, effacing the black spotting; unh no spot in 6.

*phellus tanya*, Fruh. (24–28). Java. NR.

5a (4). Upf ♂ with a short obscure brand over middle of v1, behind the discal band or just entering the yellow discal area, easily seen with petrol.

5b (8a). Upf and uph discal band divided by dark veins. Upf spot in 4 does not overlap spot in 3 and spot in 5 does not touch spot in 6 as a rule.

5c (7). Unh no discal spot in 6 linking the discal band to the spot in 7.

5 (6). Large. Tegumen broadly, bident tip clasp fringed.

α. Upf markings narrow, costa and base dark. Unh very dark ferruginous ochreous. Uph discal band not entering 6.

*hetaerus zaitila*, Plotz (31–35). The Large Dart. Bassein to S. Burma. VR (2 specimens examined).

I. 106. Padraona—Dara Group—(*contd.*)

β. Above markings broader; upf spot in 5 just touches spot in 6 and spot in 4 just overlaps spot in 3; uph discal band just enters 6 centrally as in *augias*.

*hetaerus chariyawa*, Fruh. Java. (1 specimen examined).

γ. uph discal band very irregular, spots in 4 and 5 shifted out and the discal band just entering 6 by a spot on the inner edge of 5. Markings broad.

*hetærus hetærus*, Mab. Philippines. (1 examined).

6 (5). Small. Tegumen slenderly and gradually pointed, tip of clasp pointed and not conspicuously fringed. Upf markings narrow; costa and base cell ochreous with a black streak in the cell or may be all darkened at base. Uph spots in 4 and 5 overlap to the middle of 3, no extension into 6. Unh dark ochreous with discal band showing prominently, no black spotting.

α. Above markings very narrow and unh very dark.

*mæsoides ottala*, Swin. (24–28). The Lesser Dart. Karens. R.

β. Above markings wider and unh not so dark.

* *mæsoides mæsoides*, But. Dawnas to S. Burma, Malay Peninsular, Banka. C. Probably throughout Macro-Malayana. (? = *flavoguttata*, Plotz, Philippines).

γ. Larger. Upf markings narrow. Uph discal band more confluent and spots in 4 and 5 shifted out.

*mæsoides ottalina*, Evans. (29). Andamans, VR.

7 (5c). Unh a spot in 6 connecting the discal band in 5 to the spot in 7. Tegumen undivided.

α. Above markings very narrow and pale yellow; cilia grey throughout. Uph a spot in 6 against the inner edge of the spot in 5 and a spot in 7, which may be obscure or absent. Unh pale yellow, black dusted, discal band outlined black spots. Tegumen blunt, slightly expanding.

*dara dara*, Koll. (27–29). The Common Dart. Chitral to Kumaon from 4 to 10,000 feet. NR. (= *maesa*, M.; *nala*, Plotz. *zebra*, Mab).

β. WSF above and below darker, markings darker and broader. Uph usually no spot in 6 or 7; tegumen blunt not expanding. DSF much paler below and above; wings rounded as in ♀♀; tegumen bluntly triangular.

*dara pseudomæsa*, M. (27–30). Ceylon. S to Central India. C.

γ. Larger and more brightly coloured. Same seasonal differences in appearance and genitalia. Unh in WSF is bright orange, prominently black spotted. Uph often a spot in 6 and usually one in 7. Very variable.

* *dara confucius*, Fd. (29–36). Mussoorie to Shan States, NR. China (allied race *angustata*, Matsum = *pava*, Fruh, Formosa).

δ. Comparatively small. Uph usually no spot in 6. Unh duller, black spotting not so much in evidence.

*dara serina*, Plotz. (28–33). S. Burma, Malay Peninsular, NR. Sumatra, Java, Lombok, Sumba, Sumbawa, Nias. (= *yojana*, *ganda*, *sapitana*, Fruh).

γ. Very dark with narrow pale yellow markings. Unh pale yellow. Tegumen as in DSF form of *pseudomæsa*.

*dara dilutior*, Elwes. (28–33). Borneo, Pulo Laut. (= *ahastina*, Fruh).

8a (5b). Upf and uph discal band confluent; upf spot in 5 usually touching and may be conjoined to the spot in 6 and the spot in 4 overlaps the spot in 3.

8b (10). Unh a spot in 6 connecting the discal band to the spot in 7; uph spot in 6 may be present and always a spot in 7.

8 (9). Tegumen variable, but never ending in 2 long points as in *nitida*, always broadly bident.

α. Small. Upf discal band completely confluent from 1 to apex.

*sunias satra*, Fruh. (22–25). Ceylon and Andamans, C. The Tropic Dart.

β. Larger. Upf apical spots in 4 and 5 not completely conjoined to the discal and apical spots. Very variable.

*sunias tropica*, Plotz. (25–34). S. India, Sikkim to Burma, Malay Peninsular and Islands to Celebes. C. (= *palasia*, Evans; *dushta* and *nikaja*, Fruh.; *philæmus*, Mab. incorrectly assigned a brand from 1–4 by Elwes. *flava*, Murray = *japonica*, Mab is the race from Japan and China). The specimens I have examined show the following variation:—

Var. 1. Unh bright ochreous, black spotting prominent. Markings broad. (25–29 mm.) from S. India, M. Shan States to Tavoy, Sumatra, Java, Batoe s. and Celebes—23 examined.

**I. 106. Padraona**—(*contd.*)

Var. 2. Unh pale yellow, band and black spotting obscure. (26–29). From Assam to Karens—4 examined.

Var. 3. Unh darker, black suffused presenting a greenish appearance. (27-33) from S. India, Sikkim to Dawnas, Sumatra—14 examined. This is what I described as *palnia*.

Var. 4. Darker above with very narrow markings. (25–29), from Rangoon to S. Mergui—4 examined.

Var. 5. Dark with broad markings. Unh dark greenish. (30–34), from Karens—2 examined; may be a var. of *hetaerus*.

γ. Above markings darker and tend to be separated by veins. Unh dark orange band rather obscurely black edged.

*sunias sunias*, Fd. (25–27). Moluccas. (= *ahrendti*, Plotz.).

9 (8). Tegumen deeply bident. Superficially inseparable from some forms of *sunias*. Unh ochreous, black spotting prominent. Upf ♂ brand longer than usual, covering centre third of v1; dorsal yellow streak restricted, not reaching to outer edge of the discal band.

*nitida*, Mab. (26–28). The Narrow Bident Dart. Ataran and Tavoy, NR. (8♂ and 3♀). Philippines (1 ♂).

10 (8b). Unh no spot in 6; black dusted and discal band prominent. Above much darker than usual, markings very dark orange. Very like *mæsoides*. Tegumen broadly bident.

*trachala*, Mab. (24–26). The Broad Bident Dart. Assam to Burma, C. Malay Peninsula, Sumatra, Java and Borneo.

**I. 108. Telicota.** The Palmdarts. (Plate 32).

Above dark brown with yellow to orange band of decreasing conjoined spots 1-5, to outer edge of apical spots in 6–8; costa to apical spots and all end cell may be yellow leaving only a dark central band from mid 1 to v5 or, usually ♀♀, cell and costa may be dark leaving only a yellow spot end cell; basal ½ of 1 usually dark with a tawny streak along v1; dorsal streak from base to discal band. Uph normally cell spot joined to base by a yellow streak and a broad discal band of conjoined spots 1–4 or 5, but uph may be plain tawny. Unf dark brown; apex and costa F and all H overlaid from pale ochreous to dark ferruginous scales; markings at apex F and on H may be edged black spots. All species are very variable.

1a (4). ♂ with an alar sex mark.

1b (3). ♂ with a prominent brand upf mid 1–base 4, no tuft. ♂ with a straight grey brand in the middle of the black central band; F v3 from mid 2 and 4. ♂ upf cell yellow and costa yellow to the apical spots; basal half of 1 yellow, black dusted. ♀ base dark leaving yellow spot end cell. Uph cell spot and discal band well marked. Unh very variable, discal band usually outlined black dots. Tegumen deeply divided.

**Augias Group.**

1 (2). Upf outer edges of discal spots deeply excavated and continued along veins to termen in ♂, a similar tendency uph.

*augias augias*, L. (30–35). The pale Palmdart. Ceylon, S. India to Sikkim to Burma, Andamans, NR. China, Malay Peninsular and Islands to Australia. (= *colon*, F. The Australian race is *krefftii*, McLeay = *olivescens*, HS. *argeus*, Plotz, *ancilla*, HS. and ? *anisodesma*, Lower).

2 (1). Upf outer edge of discal spots hardly excavated; veins at termen not yellow. Tegumen stouter and clasp more compact.

α. Rather paler.

* *pythias bambusæ*, M. (30–35). The Dark Palmdart. Ceylon, India, Burma, Andamans. China, Hainan, Siam, Annam and Tonkin. C. (Fruhstorfer separates the Formosan form as *formosana*).

β. Rather darker.

*pythias pythias*, Mab. Malay Peninsular and Islands. (The named races are—*upadhana*, Fruh., Lombok—*rasana*, Fruh., Phillippines—*rahula*, Fruh., Celebes. Some 14 names have been assigned to *pythias* like forms found in the Moluccas, New Guinea and Australia; there are certainly 2 or perhaps 3 species in the area. In New Guinea, Aru and N. Australia there flies an allied species with an irregular brand, for which the oldest name is probably

**I. 108. Telicota—Augias Group—(*contd.*)**

*macleayi*, Pl. Australia = *autoleon*, Misk with races *aruana*, Pl. Aru and *silativa*, Swin., New Guinea).

3 (1b). ♂ uph with a tuft of hairs from base 6. Bases dark: H no cell spot. Unh discal band not traceable; uph with a discal band (absent in some races).

**Prusias Group.**

*prusias insularis*, El. (34–40). The Tufted Palmdart. Borneo, Pulo Laut. (= *kreon*, Fruh. The Philippine race is *prusias*. Fd. = *matinus*, *sariputra* and *padhana*, Fruh. Moluccan race *batchiana*, Swin. Celebes *hercules*, Mab. = *androsthenes*, Fruh. and New Guinea *tenebricosa*, Mab.).

4 (1a). ♂ no alar sex mark. ♂ upf dark central band constricted in the middle opposite v2; spots in 4 and 5 present and touch the spots in 6–8; markings very broad, all cell and costa yellower markings narrow and base darkened. ♀ yellow spot at end cell. Below yellow brown to ferruginous, lilacine glaze in ♀. End of tegumen trident.

**Augiades Group.**

* *palmarum*, M. (35–45). The Plain Palmdart. Calcutta to Assam to Burma, Siam, Malay Peninsular and Islands. NR. (= *raktaja*, Fruh.; *kayapu*, Doh; *baweana*, Fruh.; the Philippine race is *chrysozona*, Plotz. = *negrosiana*, Fruh. From the Celebes to Australia numerous names have been assigned to what probably represent 3 or 4 species belonging to the brandless group of Telicota. A great deal of research work is still required to clear up the identity of the species belonging to this and allied genera in the Papuan region).

**I. 109. Augiades.** The Darters. (Plate 32).

Above tawny with dark borders or dark brown with yellow spots F and H. Upf always spots in 1–3 and 6–8.

1a (6a). Unh without spots or with a continuous discal row of ochreous spots 2–6 or 1–7 and a more or less prominent spot end cell. Upf spots non-hyaline (except *subhyalina*) and spaces 4, 5 near termen with spots or ochreous.

1b (3a). Unf dorsal area below v3 entirely pale, except below v1 and basal half of space 1, which is black, and a more or less apparent dark terminal border.

1 (2). Uph tawny discal area not to v7 and no traces of spots uph or unh. Tawny with black veins.

*ochracea*, Brem. (28–32). The Amur Darter. Amur, Corea. (= *rikuchina*, But, Japan, a larger race).

2 (1). Uph tawny area to v7; always at least traces of pale yellow spots upf and uph.

α. Upf tawny with broad dusky border and patch end cell. Unh greenish with the spots pale yellow.

*sylvanus sylvanus*, (28–36). The Palæarctic Darter. Europe to N. Asia. C. (There are a number of named European forms; nearly allied races are *anatolica*, Pl. Asia Minor and *hyrcana* Christoph, Persia).

β. Larger. ♂ paler, dusky areas faint; below yellow, markings faint. ♀ rather dark brown with the discal spots pale yellow; below dusky over the yellow base, spots prominent.

*sylvanus venata*, Br. and Gr. (37–40). Altai and Turkestan to Amur, N. China and Japan. (= *selas* and *amurensis*, Mab. *herculea*, But.).

γ. ♂ above borders broad and dark. Above and below veins prominently black.

*sylvanus majuscula*, El. (43). Shanghai.

3a (1b). Unf dorsum below v3 entirely dark brown, except for the yellow discal spots. Above dark brown with yellow or tawny spots and with ochreous hairs basally: upf double spot end cell and in ♀ a spot in base 2; costa and cell more or less tawny.

3b (5). Upf none of the spots hyaline.

3 (4). Wings produced. Cilia fuscous grey. Below much darker than the next and the spots more prominent.

*similis*, Leech. (38). The Similar Darter. West China.

I. 109. Aegiades—(*contd.*)

4 (3). Wings rounded. Cilia pale yellow. Below costa and apex F and all H overlaid greenish ochreous, obscuring the spots, Tegumen with 4 horns as in *sylvanus*,

*sylvanoides*, Leech. (34). The Chinese Darter. West China.

5 (3b). Upf spots above v2 hyaline. Wings rounded and cilia pale yellow. Below costa and apex (to tornus) and all H overlaid dense ochreous scales. Tegumen with 2 horns.

α. Larger.

*subhyalina subhyalina*, Br. and Gr. (44–48). The Sub-hyaline Darter. Amur, Corea and Japan.

β. Smaller.

*subhyalina thibetana*, Ob. (36–40). C. and West China. Thibet, Assam, R.

6a (1a). Unh with 3 sharply defined, dark edged, white (yellow in *cratæis*) discal spots in 2, 3 and 6; sometimes traces of a spot end cell. Above dark brown, basally clothed ochreous hairs; prominent hyaline yellow spots F and H, and sometimes traces of spots uph in 4 and 5; upf no spots in 4 and 5 (rarely a dot in 4), spots in 2, 3, end cell and apical 6–8, also non-hyaline spot in 1. Unf dorsal area below v3 dark brown, except for the discal spots. Below cell, costa and apex to tornus F and all H overlaid dark ochreous scales. Cilia yellow grey. Tegumen with 2 front and 2 back horns.

6b (8a). ♂ upf brand uniform black.

6 (7). Wings rounded. Top of clasp convex or flat.

*bouddha*, Mab. (32–35). The Buddhist Darter. West China and S. E. Thibet. (♀ var *consors*, Leech, with white spots upf).

7 (6). Wings produced. Top of clasp concave and produced.

* *siva*, M. (34–40). The Assam Darter. Assam to Karens. NR.

8a (6b). ♂ upf brand with a central whitish line, interrupted at v1.

8 (9). Comparatively small. Unh spots white. Upper apex of clasp produced.

*brahma*, M. (31–37). The Himalayan Darter. Mussoorie to Sikkim. Sylhet, Chin Hills. NR.

9 (8). Comparatively large. Unh spots yellow. Upper apex of clasp not produced.

*cratæis*, Leech. (43–46). The Great Darter. West China.

I. 110. **Pamphila.** The Chequered Darter. (Plate 32).

Above tawny with dark borders. Unf paler; apex F and all H overlaid ochreous to green. Unf 3 apical spots in 6–8 and 2 discal in 4 and 5 near margin; unh curved discal row 1–7, spot in cell and on either side of it at bases 1 and 7; spots white. These spots appear above as tawny spots, usually prominent on F and obscure or invisible on H.

α. Above dusky borders broad. Unh greenish to reddish grey.

*comma comma*, L. (30–35). Europe to Amur. (There are many named European forms).

β. Above border very narrow and sharply defined. Unh greenish, spots white and glossy.

*comma mixta*, Alph. Tian Shan, Ferghana and Turkestan.

γ. Above border broad dusky, elsewhere dark tawny. Unh dark green, discal spots dark bordered, conjoined or nearly so.

* *comma dimila*, M. Chitral to Kumaon. (*lato*, GG, from the Dschakar Mts., Thibet and ? West China is probably a good race).

δ. Above very dark and dusky border very broad, leaving only spots on H. Unh ochreous, spots obscure, whitish, reduced, usually only spot in cell and discal row 2–6.

*comma florinda*, But. Japan and Amur. (= *repugnans*, Stg. and *micado*, Mab).

I. 111. **Thymelicus.** The Midgets.

Above red to golden ochreous with dark borders and in some species dark bases, areas end cells and veins. No species has as yet been recorded from Indian limits.

1a (6a). Veins nowhere conspicuously black.

1b (5). ♂ with a brand upf.

**I. 111. Thymelicus**—(*contd.*)

1c (3a). ♂ brand continuous from v1 to base 3 and not reaching mv till mid 2 and 3. Above border narrow, well defined.

1 (2). Above more or less overlaid dark ochreous; ♀ with pale yellow spot end cell and a discal row 3–8, which may appear more or less in the ♂. Below golden yellow; dorsum F dark brown. Costa = 1½ dorsum.

*actaeon*, Rott. (27). The Dark Midget. Prussia to South Europe, North Africa and Syria. (There are several named forms, that from Syria being *phoenix*, Graves).

2 (1). Above reddish yellow, unmarked. Below apex F and all H except dorsum greenish ochreous, rest reddish yellow.

*thaumas*, Hufn. (28). The Common Midget. Europe and Asia Minor (several named forms, the Syrian being *syriaca*, Tutt).

3a (1c). ♂ upf brand broken at v2, upper part lying against mv. throughout.

3 (4). ♂ brand long, lower part crosses space 1; upper part to under v3. As *thaumas*, but border above broader and more diffused.

*hyrax*, Led. (27). The Dusky Midget. Asia Minor to Turkestan.

4 (3). ♂ upf brand thin and short, lower part consists of a spot under v2 and upper not to origin of v3. Above pale golden yellow, border very narrow, and sharply defined.

*lineola*, Ochs. (27). The Golden Midget. Europe to Turkestan and Algeria. (There are several named European forms).

5 (1b). ♂ no brand. Above border broad, sharply defined, bases dark. Below uniform pale ochreous; unf dorsal dark area to ⅓ along v2.

*stigma*, Stg. (28). The Turkestan Midget. Turkestan.

6a (1a). Veins conspicuously black. Tawny above and below.

6 (7a). ♂ upf brand as *thaumas*, ♂ above border narrow, ♀ border broad, bases dark and a dark patch at end cell F; unf tornal dark patch not to dorsum.

*leonina*, But. (30). The Tawny Midget. Japan, Corea, Amur. West China. (The West China form is smaller and probably deserves a racial name).

7a (6). ♂ no brand.

7 (8). F no black streak in cell and unf dark tornal patch not to dorsum.

α. Above borders broad, basal area H dark; dorsum F dark throughout.

*nervulata nervulata*, Mab. (30). The Veined Midget. West China.

β Above borders narrow and generally less dark.

*nervulata astigmata*, Leech. C. China.

8 (7). F a black streak in cell and unf dark tornal area to dorsum. Above borders very broad and bases dark also a dark area at end cell F; dorsum not continuously dark but divided by a pale area in the middle; in ♀ cell is dark.

α. Paler.

*sylvatica sylvatica*, Brem. (30). The Chinese Midget. Japan, Amur and Corea.

β. ♂ darker. ♀ nearly black.

*sylvatica occidentalis*, Leech. West China.

γ. Above with purple reflexions. Below veins broader black.

*sylvatica tenebrosa*, Leech. C. China.

**I. 114. Ilea.** The Wights. (Plate 32.)

1a (3). Unh cell all white. Above dark brown; upf with white hyaline discal spots in 2, 3 and 4 (and sometimes 5) and apical 6–8, often nonhyaline spot in 1, which does not show unf. Below dark brown, costa and apex F and dark areas H overlaid ochreous scales; unf mid termen whitish. Unh dark brown costa above cell and v7, dark brown central area below cell and dark margin, remainder white.

1 (2). Uph broad white tornal area extending to half-way up dorsum and to v4; dark marginal area usually tapers to v1 but may end there broadly. Unh central dark area absent or at most small in 2 and 3; marginal band in spots separated by white veins. ♂ unf a dense tuft of upturned black hairs from near base dorsum.

**I. 114. Iton**—(*contd.*)

* *semamora*, M. (42–46). The Common Wight. Sikkim to Burma, Malay Peninsular, Sumatra, Borneo and Philippines. NR. (= *barea*, Hew and *adamsoni*, Swin).

2 (1). Uph tornal white area absent or obscure, more developed in ♀ and divided by black veins. Unh the central dark area large in 1–3; marginal band not broken into spots and much broader. ♂ unf no tuft.

*watsonii*, DeN. (44–48). Watson's Wight. Chin Hills to Dawnas. West Siam. Perak (Adams' coll.). NR.

3 (1a). Unh no white in cell and not overlaid ochreous scales. Upf spots in 2, 3, 6–8. ♂ unf no tuft.

*azona*, Hew. (56). Celebes.

**I. 115. Baoris.** The Swifts. (Plate 32).

Above dark brown, bases may be clothed ochreous hairs; upf with separate white or pale yellow hyaline spots, to a maximum of 2 in cell, 1 or 2 (non-hyaline) in 1, in 2, 3, 4 and apical 6–8. Uph unmarked or the spots unh may appear. Below dark brown, costa and apex F and all H usually overlaid greenish or ochreous scales; unf often a pale diffused discal patch in 1. Unh may have up to a maximum of a pale spot in cell against mv and a discal row 1–6.

1a (9a). ♂ with alar sex-marks.

1b (3a). ♂ with no brand upf.

1 (2). ♂ uph a prominent tuft of paintbrush like recumbent hairs, dark brown, springing from below costal vein between origin of vs 7 and 8 and overlying loose grey modified scales occupying the whole cell; unf a polished dorsal area below v2, containing a yellow brown oval brand on either side of the middle of v1; dorsum F bowed. ♂ upf very dark brown, never a spot in 1; ♀ usually fully spotted. Uph spotless. Unh may rarely have small spots in 2 and 3 in ♀; not overlaid usually.

**Oceia Group.**

α. Upf no cell spots and usually no apical spot in ♂. ♀ unf single diffused spot in 1.

*oceia penicillata*, M. (38–47). The Paintbrush, Swift, Ceylon. NR.

β. Very variable, from fully spotted to spotless (var *unicolor*). ♂ clasp outer angle produced as a spine. Below slatey brown, not overlaid ochreous scales.

* *oceia farri*, M. South India to Sikkim to Burma, Andamans, Siam, Tonkin, Hong Kong, Malay Peninsular, Sumatra, Nias, Java. C. (= *scopulifera* and *unicolor* M. *sikkima*, Swin).

γ. Unh greenish yellow brown.

*oceia leechi*, Elwes. C. and West China.

δ. Unh purple brown.

*oceia simillima*, Elwes. Borneo, Pulo Laut.

η. Unh plain brown as in α and β. Clasp outer angle sloped.

*oceia oceia*, Hew. Philippines. (= *neophytes*, Mab.).

2 (1). ♂ unf a brush of upturned dark brown hairs from along dorsum. F no cell spots; ♀ no spot in 1, in ♀ 1 or 2; unf whitish discal area in 1, obscure in ♂, large in ♀. Unh plain dark brown in ♂; in ♀ more or less overlaid dark ochreous scales and may be spots in 2 and 3; ♀ very like ♀ of *kumara*, but unf spot in 1 not separable into 2.

**Plebeia Group.**

*plebeia*, DeN. (36–38). The Tufted Swift. Sikkim to Burma, Java, Borneo, Pulo Laut. NR. (= *mormo*, Mab.).

3a (1b). ♂ upf a whitish centred seam from mid v1 to ½ along v2 (under the discal spot in 2).

**Mathias Group.**

3b (7a). F v2 opposite v11 or just before it. Wings produced. F with 2 cell spots; ♀ 1 or 2 spots in 1 upf.

3c (5a). Uph and unh unmarked. Antennæ long = v12.

1. 115. Baoris—Mathias Group—(*contd.*)

3 (4). Above dark brown, bases overlaid dark greenish hairs. Below purple brown, more or less overlaid on H with dark ochreous scales. ♀ very like *cahira* ♀, but v2 F is nearer v11.

*brunnea*. Small. (44-47). The Dark Branded Swift. Sikkim to Burma, S. Annam, Java, Bali, Borneo. NR. (= *caera*, DeN. and *sodalis*, Mab.).

4 (3). Above brown overlaid yellow hairs. All spots small and yellow; no spot in 8. Below brown, overlaid ochreous. Tegumen long ending in two divergent points and with two incurved side horns (as *conjuncta*); clasp as *sinensis*. Palpi 3rd joint more prominent than usual. Below body, etc., ochreous.

*flava*, Evans. (40). The yellow Branded Swift. Kanbauk, Tavoy, one male April 1924.

5a (3c). Unh and sometimes uph more or less white spotted. Cilia grey. Unh overlaid greenish scales. Tegumen divided. Antennæ short, shorter than v12.

5 (6). Large. Tegumen not tapering. Unh with prominent spots in cell and discal 2-6, some may be absent and some show uph.

α. Tegumen tips parallel or divergent. Unh spots rarely complete and rarely showing uph.

*sinensis subochracea*, M. (36-39). The Large Branded Swift. Ceylon, S. India to Bengal. R.

β. Tegumen tips connivent. Spots usually complete and usually appearing uph.

* *sinensis sinensis*, Mab. (40-47). Kangra to S. Shan States. W. and C. China. NK. (= *prominens*, M. and *similis*, Leech).

6 (5). Tegumen tapering, tips connivent. Unh spots much smaller, very variable, may be a full series (cell and 1-7) or none; uph usually unmarked, but frequently the spots in 3, 4 and 6 may show.

α. Very pale.

*mathias thrax*, Hub. The Small Branded Swift. Aden, Syria, Mesopotamia, Lahej.

β. Pale.

*mathias midas*, Walker. (32-38). Sind, Cutch and S. Punjab. C.

γ. Normal dark brown form. Typically with prominent spots upf; a larger darker form occurs with the spots reduced or absent (*agna*).

*mathias mathias*, Fab. Ceylon, India, Burma, Andamans. C. Japan, Formosa, China to Australia. (= *agna* and *chaya*, M.; *monilis*, Mab.; *juliana*, Lat.; *ella*, *balarama*, *ceramica*, Plotz.; *niasica*, Fruh; the Australian race seems larger and might stand as race *lyelli*, Roth, described from Vulcan Is.)

7a (3b). F v2 well before v11. Unh white spots in 2-5, which may show uph. Antennæ short, not as long as v12. Wings broad.

7 (8). Above pale brown, upf 2 cell spots; brand in ♂ prominent and more oblique than usual. Below overlaid greenish scales.

*mencia*, M. (42). The Chinese Branded Swift. Shanghai, Nankow, Ningpo, Kiukiang.

8 (7). Above dark brown, single upper cell spot upf; brand incomplete and obscure, in two parts and lower part may be absent. Below much darker and overlaid ochreous scales.

*nascens*, Leech. (44). The Semi-branded Swift. W. China.

9a (1a). ♂ no alar sex mark.

9b (22a). Antennæ long, at least as long as v12.

9c (17a). Uph never spotted and unh at most 2 spots (in 2 and 3) in ♀♀, very rare in ♂. Dark brown.

9d (14a). Upf with spots in the cell.

9 (10a). Upf spots in cell conjoined to a figure of 8; ♀♀ with a spot in 1. Below dark brown, not overlaid differently coloured scales. Above spots pale yellow. Cilia greyish to pale yellow.

*pagana*, DeN. (46-50). The figure of 8 Swift. Sikkim to Dawnas, NR.

10a (9). Upf cell spots not conjoined.

10 (11a). Upf spots in cell prominent and sub-equal (in individuals the spots may be somewhat obscure); Cilia greyish. Below more or less

I. 115. **Baoris—Philippine Group—(*contd.*)**

laid dark ochreous scales. Normally with no spot in 1 upf in ♂; ♀ with 1 or 2 spots.

*a*. As *austeni*, larger. ♀ unh with a spot in 1.

*cahira bromus*, Leech. (42–46). The Coben Swift. W. China, Hong Kong.

β. Comparatively small and pale. Upf spot in 1 usually absent, always present unf. Lower lobe of clasp is produced, but this feature is variable.

*cahira austeni*, M. (38–42). Sikkim to Manipur. NR. (= *onchisa*, Swin.).

γ. Large and dark. Upf always a spot in 1 in ♂; unf the spot is double. Horns on top of tegumen not traceable as separate from the lobes, vertical aspect triangular; lower lobe of clasp bent right over.

*cahira sirius*, Evans. (42–46). Karens to Dawnas. NR.

δ. Small and rather dark. Spots and cilia whiter than usual. Upf no spot in 1, but usually traceable unf. Genitalia as *cahira*.

*cahira carna*, Evans. (36–42). Rangoon, Tavoy. NR.

η. Larger and very dark. Upf no spot in 1 or 4 in ♂. Tegumen horns separate from the lobes.

*cahira cahira*, M. (40–44). Andamans and Nicobars. NR.

ζ. Large resembling *sirius*, but spots are smaller. Upf no spot in 1 and obscure unf. Genitalia as *sirius*.

*cahira sirvana*, Plötz. (42–46). Siam, Tonkin, Malay Peninsular and Islands. (The smaller and paler Philippine and Celebes form is *jetavana*, Fruh. and *robusta*, Elwes, from Sangir probably is a *cahira* race).

11a (10). Upf upper spot in cell absent or just traceable; lower spot prominent.

11b (13). Above cilia brown yellow.

11 (12). Wings poduced. Upf spot in 4 absent or just traceable; apical spots absent or a dot in 6; obscure spot in 1, which unf is prominent and suffused. Below dark golden brown. Tegumen ending in 4 points.

*aureolilata*, Elwes. (43). The Yellow Fringed Swift. Sikkim to Manipur. R.

12 (11). Wings broader. Upf spots small, but the spot in 4 and the apical spots 6–8 prominent; no spot in 1 upf or unf. Unh dark brown, overlaid ochreous brown scales. Tegumen rounded at top.

*chimdroa*, Evans. (38). The Abor Swift. Chimdro Valley, Abor Valley (3 ♂, see *E.N.H.S. Journal*, vol. xxiii, p. 586).

13 (11b). Above cilia greyish; dark brown, apex F broadly paler. Unh dark purple brown overlaid dark ochreous scales; apex unf markedly paler brown. Upf spot in 1 absent or just traceable, prominent in ♀; unf always a spot in 1.

*comasa*, Mew. (38–40). The Full Stop Swift. Sikkim to Burma, Siam, Malay Peninsula and Islands. R. (= *comasa* Swin. and Fruh. in error; *dravida*, Mab.; *moolata*, M.).

14a (9d). Upf no spots in cell.

14b (16). Unh uniformly overlaid ochreous or greenish scales.

14 (15). Unh overlaid dark ochreous scales. ♂ upf no spot in 1 (rarely just traceable); present in ♀.

*a*. Large and dark. ♂ unf no spot in 1 or just traceable. ♀ unh no spots. Tegumen top horns insignificant.

*kumara lanka*, Evans. (42–46). The Black Swift. Ceylon. NR.

β. Paler. Unf pale diffused spot 1, sometimes traceable upf. Tegumen top horns short, but conspicuous. ♀ unh usually a spot in 2 and sometimes in 3.

*kumara kumara*, M. (38–44). S. India to N. Kanara. NR.

γ. Similar but rather darker. Tegumen top horns long, divergent.

*kumara moorei*, Evans. (39–44). Sikkim to Dawnas. R.

δ. Smaller, darkar; spots on F much yellower; upf no spot in 1 and usually not traceable unf. Tegumen lobe tips and horns equal, prominent; horns not so long as in *moorei*.

*kumara malaya*, Evans. (36–40). Mergui, Malay Peninsula. NR. Java (Elwes and Fruh). Borneo (Elwes).

15 (14). Unh overlaid greenish scales. Wings more pointed, ♂ upf always a prominent spot in 1.

**I. 115. Baoris—Philippina Group—(*contd.*)**

α. Large and darker. Unh greenish scales sparse. ♂ upf usually a second spot in 1.

*philippina seriata*, M. (40–44). The Philippine Swift. Ceylon. NR.

β. Smaller and paler. Unh greenish scales often dense.

* *philippina philippina*, HS. (39–42). S. India, R. Sikkim, Burma. VR. Malay Peninsula, Sumatra, Borneo, Philippines. (? races are *larika*, Pag, Amboina, Moluccas; *mehavagga*, Fruh., Celebes; *subfenestrata*, Rober. Key Is.)

16 (14b). Unh dark brown with a broad purple white central area from dorsum to costa, broken in 1; unf traces of similar colour on the costa. Upf and unf in ♂♀ no spot in 1.

*tulsi*, DeN. (40–48). The Purple Swift. Sikkim to Karens. NR. Java. (= *jolanda*, Plotz.).

17a (9c). Unh and often uph with prominent pale spots. Upf always prominent cell spots.

**Conjuncta Group.**

17b (19a). Upf the spot in 2 with its inner edge in line with the outer edge of the spot in the cell or still nearer the termen; always prominent lower and often small upper spot in 1; cell spots separate or conjoined. Above dark brown, basally clothed dark ochreous hairs. Below dark brown overlaid dark ochreous scales. Unh spotting variable up to a maximum of a spot in cell and a discal series 2–5 more or less equal.

17 (18). Uph only prominent elongated spot in 4. Spots white.

* *assamensis*, WM. (50–60). The Great Swift. Central Provinces, Ganjam, Mussoorie to S. Burma, Formosa, S. China, Malay Peninsula. NR. ♂, Plotz.).

18 (17). Uph small round spots in 3 and 4 and sometimes 2; frequently more. Upf spots yellow.

α. Darker. Unh spots comparatively large, complete, and prominent.

* *conjuncta narooa*, M. (45–52). The Conjoined Swift. Ceylon, S. India. R.

β. Paler. Uph spots small and often incomplete.

*conjuncta conjuncta*, HS. Dun to Burma, Andamans, Nicobars, R. S. China, Annam, Malay Peninsular and Islands, Philippines, Lombok, Banka, Timor, Sumbawa. (= *javana*, Mab. Races are *beraka*, Plotz, Celebes; *stictica*, Fruh., Moluccas. *laraca*, Swin., is probably referable to *conjuncta*; it occurs on Woodlark, Dampier and Vulcan Islands and N. Australia).

19a (17b). Upf spot in 2 immediately under the cell spot.

19b (21). Unf cell spots completely conjoined and a prominent spot in 1 against vl, spots large. Above dark brown, basally clothed ochreous or greenish hairs. Unh overlaid dark ochreous scales. Uph 3 prominent discal spots, of which the double spot in 4–5 is largest and spot in 3 smallest (may be absent); third spot in 9.

19 (20). Hyaline spots bright yellow; cilia bright yellow; base and dorsum F and dorsal ½ H clothed ochreous hairs. F spots larger; inner edge of spot in 3 nearly touching the outer edge of the spot in 2; spot on 1 elongate oval. Unh dark ochreous, veins obscurely black. Tegumen with 4 horns, lower and outer pair stout and divergent; inner and upper pair slender and nearly parallel.

* *eltola*, Hew. (35–45). The Yellow Spot Swift. Mussoorie to Karens. NR.

20 (19). Hyaline spots white or pale yellow; cilia nearly white; bases clothed greenish hairs. F spots smaller, inner edge of spot in 3 separated by its width from the outer edge of the spot in 2; spot in 1 pyramidal. Unh greenish ochreous, veins not dark. Tegumen ending in a blunt tip, quite different to *eltola*.

α. Larger. Wings more produced. Hyaline spots pale yellow.

*discreta himalaya*, Evans (35–42). The Himalayan Swift. Murree to Kumaon. NR.

β. Smaller. Wings more rounded. Hyaline spots white.

*discreta discreta*, Elwes. (34–37). Sikkim to Dawnas.

21 (19b). Upf spots small, white, cell spots separate, no spot in 1. Above dark brown, no clothing of ochreous or greenish hairs and H unmarked;

**I. 115. Baoris—Conjuncta Group.**—*(contd.)*

Below dark brown, costa and apex F and all H overlaid very sparse ochreous green scales. Unh a discal row of 5 small white spots 2–6, in ♀ only in 2 and 6.

***minuta*, Evans.** (26–30). The Baby Swift. 2 ♂ Perak JOR Camp, 2,000 feet, August 1922. 1 ♀ Kanbauk, Tavoy, April 1924

22a (9b). Antennæ short, shorter than v12.

22 (26a). Upf spot in 2 placed well back so as to be under the cell spot or at least so that its inner edge is in line with the outer edge of the 2 cell spots (♀ *contigua* aberrant, but distinguished by the conjoined cell spot).

**Pellucida Group.**

22c (25). Unh normally with discal row 2–6 and sometimes obscure spot end cell; at least spots in 4 and 5 present.

22d (24). Upf always a spot in 1.

22 (23). Upf cell spots separate. Uph a complete series. Above bases clothed dark greenish hairs. Unh overlaid greenish ochreous scales. Wings broad.

*pellucida*, Murray. (40). The Pellucid Swift. Japan and China (= *quinquepuncta*, Mab.).

23 (22). Upf discal spots conjoined. Uph and unh very variable, complete series may be present or only spots in 4 and 5. Above brown, overlaid ochreous hairs. Below overlaid ochreous brown scales. Wings more pointed. H v7 opposite v2.

* *contigua*, Mab. (36–42). The Contiguous Swift. S. India. Kumaon to Burma. China, Formosa, Siam, Tonkin, Malay Peninsula and Islands, Bali, Lombok, Sumbawa, Celebes. (= *toona*, M. and *scortea*, Mab.)

24 (22d). Upf no spot in 1 or upper cell spot; spots in 2, 3 and 4 elongated to bases of their interspaces. Uph discal spots in 2–5 elongate and prominent. Above brown, overlaid ochreous scales and all spots yellow; below similar, paler.

*amalia* Semp. (30). The Australian Swift. N. Australia. (= *fulgidus*, Miskin and *sigida*, Mab.)

25 (22c). Unh only spots in 2 and 3 of which that in 3 appears above. Upf spot in 4 absent and spot in 1 small; apical dots in 6 or 6 and 7; cell spots separate. Above dark brown, heavily overlaid ochreous hairs. Below overlaid bright ochreous green scales, rendering spots unh difficult to see. Wings produced.

*bipunctata*, Elwes. (40–44). The Moluccan Swift Batjan, Moluccas. (= *sidata*, Fruh, Buru; ? *contigualis* Roth., New Guinea).

26a (22b). Upf spot in 2 not before the origin of v3 and well in front of the cell spots, if latter are present. Never with the yellow appearance of the last group.

**Guttatus Group.**

26b (31). Upf spots in 2, 3 and 4 equidistant and never a spot in 5.

26c (29a). Unh normally discal spots in 2–5 or 6 and at least spots in 4, 5 present. Upf no spot in 1.

26d (28). Uph unmarked. Unh spot in cell against upper edge and discal series 2–6.

26 (27). Upf 2 prominent spots in cell. Above rather pale brown; below similar, more or less overlaid ochreous green scales. Unh spots white.

*jansonis*, But. (40). Janson's Swift. Japan, Corea.

27 (26). Upf single upper spot in cell or none. Above dark brown and spots white. Unh dark ochreous and spots pale shining purple.

*coerulescens*, Mab. (44). The Bluespot Swift. W. China.

28 (26d). Uph marked as unh. Upf no spots in cell (very rarely 2 are traceable). Above dark brown. Below apex and costa F and all H densely overlaid pale greenish scales. Unh normally only spots in 2–5, but occasionally a spot in 6 and in cell are traceable.

*a*. Large. Uph discal spots in a straight decreasing row.

* *guttatus guttatus*, Brem. (34–40). The Straight Swift. Chitral to Assam, Hills 2–9,000 feet. China and Japan. C. (=*fortunei*, Fd.; *mangala*, M. and *cinnara*, Wall, Formosa).

I. 115. Baoris—Guttatus Group.—(*contd.*)

β. Small. Uph and unh spotting very variable, discal row may be as in *guttatus* or curved and irregular.

*guttatus bada*, M. (32-36). Ceylon, India, Burma, C. China, Hainan, Formosa, Tonkin, Siam, Malay Peninsula and Islands, Philippines, Celebes, N. Australia. (= *philino*, Mosch; *daga*, *sifa*, *intermedia*, *sondos* and *kolantus*, Plotz.; *quinigera*, M.; *apostata*, Snell; *philatas*, DeN.)

29a (25c). Unh no spots in 4 and 5. Below apex and costa F and all H more or less overlaid pale greenish ochreous scales.

29 (30). Unh with a broad pale central fascia, caused by the greenish ochreous scales being rather denser there; normally decreasing white spots in 2 and 3, which do not appear uph. Upf 2 prominent cell spots; ♂ without, ♀ with spot in 1, present unf. Above brown, bases and most of H clothed obscure greenish hairs.

*canaraica*, M. (42-44). The Kanara Swift. S. India. R. (= *flexilis*. Swin.).

30 (29). Unh uniformly overlaid dense greenish ochreous scales. Very variable. Upf cell spots present or absent, always a spot in 1. Unh usually white spots in 2, 3 and 6; usually the spot in 3 appears upf.

α. Generally paler.

*zelleri zelleri*, Led. (30-36). The Rice Swift. Syria, N. Africa.

β. Generally darker.

* *zelleri colaca*, M. Ceylon, India, Burma, Andamans, Nicobars, C. Formosa, Hainan, Malay Peninsula and Islands, Philippines, Moluccas, N. Australia (= *cingala* and *hainana*, M.; *saturata*, WM. and DeN.; *distictus*, Holland; *saruna*, *daendali* and *urejus*, Plotz & ? *ogasawarensis*, Matsumura, Bonin Is.).

31 (26b). Upf spot in 3 nearer spot in 2 than spot in 4, usually a spot in 5; only an upper spot in cell, which may rarely be absent. Above rather pale brown. Below apex and costa F and all H closely overlaid pale greenish ochreous scales. Unh small white spots in 2-6, those in 4 and 5 often absent; these spots appear uph more or less obscurely.

α. Upf no spot in 1.

*bevani thyone*, Leech. (30-36). Bevan's swift. C. and W. China, Formosa.

β. Upf ♀ with a spot in 1; in ♂ present or absent.

* *bevani bevani*, M. Ceylon, India, Burma, Andamans, Nicobars, C. Malay Peninsula and Islands, Philippines. (=*vaika*, Plotz.) (I have been unable to place the following: —*repetita*, But. New Lauenburg; *albiclavata*, But., New Pomerania and Georgia; *cretura*, Plotz, Celebes; *unicolor*, Dist., Malacca; *yunuca*, Fruh., Formosa; *palawanica*, ? figured in Seitz; *impar*, Mab., Australia or Oceania).

I. 116. Gegenes. (Plate 32.) The Dingy Swift.

Above very dark to very pale brown in desert areas. ♂ normally unmarked above, but in pale specimens the spots from below may show through; in ♀ upf the spots from below always show through. Cilia dusky grey. Below costa and apex F and all H clothed grey scales. Unf in ♀ complete row of discal whitish spots, 2 in 1 (upper small and against outer edge or lower spot), in 2 and 3, small in 4 and 5, apical 6-8; in ♂ the spots are reduced and the spot in 1 is rarely traceable. Unh a discal row of obscure small grey white discal spots in 1-5 and a spot in 6 further from termen.

* *nostrodamus*, Fab. (28-35). Baluchistan, Sind, Punjab, Chitral to Kumaon. NR. S. Europe, N. Africa, W. and C. Asia. (= *pygmæus*, Auct in error; *pumilio*, Hoff; *lefebvrei*, Ramb.; *karsana*, M.,—the desert form).

I. 117. Gegenes. The Torpedo. (Plate 32).

Above brown, cilia grey; semi-hyaline spots on F only, double spot in cell, discal row pointing to apex, consisting of double spot in 1, in 2 and 3 (coalesced in ♀), small dots in 4 and 5 (often absent), conjoined apical spots in 6-8. Below brown, apex F and all H overlaid grey scales leaving on H obscure pale centred dark spots in 1, 2, 3 and 5. Unf the scales on the basal ½ erect, rough looking.

* *alcides*, HS. (38-44). Chitral, NR. Asia Minor, Armenia, Buchara, Karatevin. (= *ahrimani*, Christoph.)

Achillides ... = 4
acco ... 13/9
acconus ... 13/7
acheron ... = 6/3
adamsoni ... 2/11
aeacus ... 1/3
afer ... ... = 13/4
agammemnon ... 6/8
agenor ... 4/2
agestor ... 3/1
aidoneus ... 2/1
albicans ... = 13/4
albociliatis ... 6/4
alcanor ... 4/2
alcibiades ... = 5/6
alcinous ... 2/18
alexanor ... 4/28
amphia ... 8/2
amphrysus ... 1/5
andamanica ... 6/8
andamanicus ... 4/23
androgeos ... = 4/2
anticrates ... 5/5
antiphanus ... = 5/6
antiphates ... 5/6
aphnea ... 1/4
Araminta ... = 4
arcturus ... 4/11
aribbas ... 8/1
aristeoides ... = 5/5
aristeus ... 5/5
aristolochiæ ... 2/10
arius ... 4/11
Armandia ... 11
arycles ... 6/7
asiatica ... 4/29
astorion ... 2/2
astreans ... = 4/25
atkinsoni ... 13/5
atroguttata ... = 13/10
augustus ... 13/6
axion ... 6/3
azelia ... = 1/4
Balignina ... = 2
balucha ... 12/1
barata ... 2/16
bathycles ... 6/6
bianor ... 5/8
birmanicus ... = 4/29
bootes ... 4/4
bryki ... = 13/10
buddha ... 4/14
butlerianus ... 4/2
Byasa ... 2

cacharensis ... 2/6
cachemiriensis... =13/3
Cadugoides ... =3
cambyses ... 1/1
camorta ... 2/10
cashmirensis ... 5/1
castor ... 4/18
casyapa ... = 3/5
cerberus ... 1/4
ceylonicus ... 2/10
ceylonicus ... 5/6
chaon ... 4/21
charino ... = 13/4
charltonius ... 13/10
Charus ... = 4
chentsong ... = 2/14
cheronus ... 6/5
Chilasa ... 3
chiron ... 6/6
chitralensis ... 13/2
chitralica ... 13/5
Chlorisses ... = 6
cloanthus ... 6/1
cloanthulus ... = 6/1
clytia ... 3/5
clytioides ... = 3/5
commixtus ... 3/5
continentalis ... = 5/6
coon ... 2/6
crassipes ... 2/17
cresconius ... = 3/1
crino ... 4/13
curiatius ... = 3/2
curius ... 10/1
cyroides ... = 4/25
cyrus ... = 4/25
Dabasa ... = 8
daksha ... 4/19
Dalchinia ... = 6
danisepa ... 3/4
darsius ... 1/1
dasarada ... 2/16
deckerti ... = 13/10
decoratus ... 6/8
decurio ... = 4/3
delphius ... 13/5
demoleinus ... = 4/27
demoleus ... 4/27
demolion ... 4/26
Deoris ... = 5
depelchini ... = 4/2
diphilus ... 2/10
discobolus ... 13/1
dissimila ... 3/5

dissimillima ... 3/5
dissimilis ... 3/5
doddsi ... = 4/7
doson ... 6/3
doubledayi ... 2/6
dravidarum ... 4/16
ducenarius ... 4/21
echo ... = 4/4
eleius ... 6/3
elephenor ... 4/7
epaminondas ... 5/6
epaphus ... 13/3
epycides ... 3/2
erithonius ... = 4/27
eumagos ... 1/4
Euplœopsis ... = 3
euprotenor ... 4/6
eurous ... 5/1
eurypylus ... 6/5
evan ... 8/2
evanides ... = 8/2
evemon ... 6/4
flavolimbatus ... 3/5
fruhstorferi ... = 4/13
fuscus ... 4/23
ganesa ... 4/9
gemmifer ... 13/9
gladiator ... 4/8
glycerion ... 5/2
goniopeltis ... 2/10
govindra ... 3/11
gyas ... 8/1
gyndes ... 7/1
gypsothelia ... = 1/4
hampsoni ... = 13/9
hannyngtoni ... 13/8
hardwickei ... 13/4
Harimala ... = 4
haudei ... = 13/10
hector ... 2/9
helena ... 1/4
helenus ... 4/19
heliaconoides ... 1/4
helios ... 12/1
hermocrates ... 5/5
himalaicus ... = 9/1
himalayensis ... = 13/2
hipponous ... 4/24
hostilius ... = 2/15
hunnyngtoni ... = 13/8
hunza ... 13/5
Hypermnestra ... 12
hypochra ... 3/2
Iliades ... = 4

impediens ... = 2/18
imperator ... 13/6
imperatrix ... 9/3
imperialis ... 9/1
impunctata ... = 13/1
indicus ... 7/1
indistincta ... 10/2
insignis ... 13/1
iponus ... 5/3
Isamiopsis ... = 3
iswara ... 4/20
itamputi ... = 5/6
jacquemontii ... 13/2
jaintinus ... = 3/3
janaka ... 4/4
janus ... 3/5
jason ... = 6/3
jophon ... 2/8
kabrua ... 2/12
kafir ... 13/5
Kailasius ... = 13
kala ... = 4/4
kephisos ... 7/2
Koramius ... = 13
krishna ... 4/12
lachinus ... = 8/1
ladakensis ... 4/29
Laertias ... =4
læstrygonum ... =5/6
lampidius ... 13/5
lanata ... = 3/5
lankeswara ... 3/5
latonius ... 13/5
latreillei ... 2/12
letincius ... = 2/15
Leptocircus ... 10
leptosephus ... = 4/24
leucacantha ... = 4/21
leucocelis ... 4/5
lidderdalei ... 11/1
ligyra ... = 6/6
liomedon ... 4/26
lioneli ... 7/1
Losaria ... = 2
macareus .. 7/1
machaon ... 4/29
macronius ... 6/5
mahadeva ... 4/17
maheswara ... = 4/17
malayanus ... 4/27
mamaivei ... = 13/5
marginata ... 3/3
mayo ... 4/3
Meandrusa ... 8
megarus ... 7/3
meges ... 10/2
mehala ... 4/18
melas ... = 6/2
memnon ... 4/2
Menamopsis ... = 3
Menelaides ... = 2
menides ... 6/8
mesites ... = 4/18
Mimbyasa ... = 4
minereus ...
mineroides .. = 2/11
mixta ... 4/4
mœlleri ... = 13/7
montanus ... 4/13
mooreanus ... 4/19
naira ... 5/6
nebulosus ... = 5/6
neptunus ... 2/5
neronus ... = 7/2
nevilli ... 2/4
nicevillei ... 13/5
nigricans ... = 5/5
nirius ... = 13/3
noblei ... 4/22
nomius ... 5/4
occidentalis ... = 13/10
onpape ... 3/5
Ornithoptera ... = 1
orthia ... 6/4
otos ... = 13/4
palinurus ... 4/15
pammon ... = 4/25
pandiyana ... 2/8
Pangerana ... = 2
Pangeranopsis. = 4
panope ... = 3/5
Panosmia ... = 2
Panosmiopsis ... = 4
paphus ... = 5/2
papone ... 3/5
paradoxa ... 3/4
Paranticopsis ... 7
parinda ... 4/1
paris ... 4/10
Parnassius ... 13
parryiæ ... = 9/1
parva ... = 13/4
paryphanta ... = 4/21
Pathysa ... 5
payeni ... 8/2
Pazala ... = 5
peeroza ... = 4/9
pembertoni ... 2/18
perakensis ... 7/1
pernomius ... = 5/4
petina ... = 6/5
phœnix ... = 4/2
philoxenus ... 2/15
phrontis ... 7/2
pitmani ... 4/24
polias ... 4/18
polla ... 2/13
polyctor ... 4/9
polyeuctes ... 2/15
polymnestor ... 4/1
polymnestoroides = 4/2
polynices ... = 7/1
polytes ... 4/25
pompilius ... 5/6
porphyria ... = 4/9
prexaspes ... = 4/23
protenor ... 4/6
publilius ... = 4/5
punctata ... 2/3
pundit ... = 13/5
ravana ... 2/16
rhadamanthus = 1/3
rhetenor ... 4/5
rhetenorina ... = 4/2
rhodifer ... 2/7
rhodius ... = 13/2
rhyparia ... = 1/4
romulus ... 4/25
rubida ... = 4/25
rufata ... = 4/19
rufescens ... = 6/8
ruficollis ... 1/5
rufoplenus ... = 6/8
Sadengia ... = 4
Sainia ... = 4
sakontala ... = 4/25
sambilanga ... 2/6
Sarbaria ... = 4
sarpedon ... 6/2
schanus ... 4/7
senchalus ... = 3/1
significans ... 4/9
sikkimensis ... = 4/4
sikkimensis ... 4/29
sikkimensis ... 13/3
sikkimica ... 5/1
similis ... 7/3
simo ... 13/7
simonides ... = 13/7
slateri ... 3/3
splendorifer ... = 4/10
stenosemus ... = 13/5
stichioides ... 4/25
stichius ... 4/25
stoliczana ... 13/5
swinhœi ... 5/4
sycorax ... 2/4
Tadumia ... = 13
Tamera ... = 4
tamilana ... 4/10
tavoyana ... 3/3
Teinopalpus ... 9
telearchus ... 3/4
teredon ... 6/2
thermodusa ... = 6/2
thermus ... = 7/2
triumphator ... = 4/9
Troides ... 1
Tros ... = 2
turificator ... = 4/5
tytleri ... 2/18
varuna ... 2/2
verityi ... 4/29
virescens ... 10/2
viridicans ... 13/4
walkeri ... = 4/25
whitei ... = 13/5
workmanni ... = 13/5
xenocles ... 7/2
xenocrates ... = 7/2
xuthus ... 4/30
zaleucus ... 2/3
Zetides ... 6

Index—PIERIDÆ—B


adamsoni ... 10/7
agathon ... 5/4
aglaia ... 6/7
agnivena ... = 17/1
agoranis ... 6/1
agostina ... 6/1
ajaka ... 4/7
ajuta ... = 4/7
alana ... = 17/2
alberta ... = 18/7
albina ... 10/6
albina ... 18/1
alcmene ... = 11/1
alcyone ... = 11/4
alpherakii ... 16/2
amarantha ... = 6/5
amata ... 18/1
amba ... = 9/3
amboides ... = 9/3
Anaphaeis ... = 8
andamana ... 9/3
andamana ... 12/1
andamana ... 15/7
andamana ... 17/2
andersoni ... = 15/7
aperta ... = 10/5
apicalis ... = 15/5
Aporia ... 5
Appias ... 10
ares ... = 10/4
argyridina ... = 10/2
arisca ... = 5/4
aserrata ... = 11/2
aspasia ... 14/3
assamica ... 12/1
aturia ... = 19/1
auriga ... = 6/6
aurigena ... = 8/1
ausonia ... 3/3
australis ... = 4/7
australis ... 19/1
avatar ... 20/1
Baltia ... 2
balucha ... 5/1
beata ... = 6/7
belemia ... 3/2
Belenois ... 8
belia ... = 3/3
belladonna ... 6/5
berinda ... 6/5
berylla ... 16/6
bimbura ... = 18/5
blairiana ... = 15/5
blanda ... 15/4
boylei ... = 6/5
brassicæ ... 4/11
brindaba ... = 13/2
burmana ... 6/5
burmana ... 12/1
butleri ... 2/2
cadelli ... = 15/4
calais ... = 18/1
callidice ... 4/2
Callidryas ... 11
cana ... 16/10
candida ... 4/10
canis ... 4/10
caphusa ... 5/4
carnifer ... = 11/1
casimirus ... = 18/5
catilla ... 11/2
Catophaga ... =10
Catopsilia ... 11
ceylanica ... 20/2
ceylonica ... 19/1
charlonia ... 3/1
chitralensis ... 14/2
chitralensis ... 16/2
chloridice ... 4/1
chrysea ... 10/9
chryseis ... = 11/5
chrysodona ... 16/7
chumbiensis ... 4/5
cinigala ... 9/3
cingala ... = 15/2
cingalensis ... 17/2
ciscia ... = 11/2
citrina ... = 15/4
citrina ... = 17/2
citronella ... = 11/2
clemanthe ... 7/3
colaba ... = 17/2
Colias ... 16
Colotis ... 18
compacta ... = 20/2
confluens ... = 10/2
confusa ... = 10/6
contubernalis ... = 15/5
copia ... = 9/2
coronis ... = 9/2
crocale ... 11/1
croceus ... 16/11
cumballa ... = 17/1
curiosa ... = 15/5
cypræa ... = 18/1
danæ ... 18/7
Danaus ... = 4
dapha ... 9/2
daphalis ... 3/3
daplidice ... 4/3
darada ... 10/6
davidsonii ... = 15/4
decipiens ... = 13/2
Delias ... 6
denigrata ... = 5/1
deota ... 4/2
depalpura ... = 17/1
Dercas ... 13
descombesi ... 6/6
devaca ... = 6/3
devta ... 4/6
dharmsalæ ... = 17/2
dirus ... = 18/7
doubledayi ... 13/1
drona ... = 15/1
dubernardi ... 4/5
dubia ... 18/8
dubius ... = 18/3
dulcis ... 18/7
durvasa ... = 10/2
dynamine ... = 18/1
eboroides ... 18/7
edusa ... 16/11
edusina ... 16/11
elwesi ... = 16/4
eogene ... 16/10
epicoena ... = 10/5
Eronia ... = 20
ethire ... 6/3
eucharis ... 6/2
eucharis ... 18/6
Euchloe ... 3
Eurymus ... = 16
evagete ... 9/2
evippe ... = 17/2
excavata ... =15/5
familiaris ... = 17/2
farinosa ... 14/2
farinus ... = 18/5
fasciata ... = 10/7
fausta ... 18/4
faustina ... 18/4
fervidior ... = 8/1
fieldii ... 16/11
figulina ... = 10/8
fimbriata ... 15/5
flava ... 10/6
flavalba ... =6/4
flavescens ... = 11/1
florella ... 11/5
fraterna ... = 15/5
fraterna ... = 20/2
frequens ... = 17/2
fulvia ... 18/4
gaea ... = 20/3
galathea ... 10/7
galba ... = 10/8
gabbara ... = 10/5
galene ... 10/7
Gandaca ... 12
Ganoris ... = 4
ganduca ... = 17/2
glaucippe ... 19/1
glauconome ... 4/4
glicia ... = 16/7
gnoma ... 11/5
Gonepteryx ... 14
grandis ... = 15/4
harina ... 12/1
harrietæ ... 5/3
hearseyi ... = 6/5
Hebomoia ... 19
hecabe ... 16/5
hecabeoides ... 15/5
heera ... = 11/1
helferi ... = 4/3
helice ... 16/11
heliophila ... = 15/4
hesba ... 5/2

hierte ... 6/3
hippia ... 20/3
hippoides ... 10/5
hira ... = 9/2
horsfieldii ... = 6/5
Huphina ... 9
Hyposcritia ... = 10
imbecilis ... = 10/3
hyale ... 16/7
hyparete ... 6/3
immaculata ... = 18/7
indica ... 4/10
indica ... = 6/3
indra ... 10/3
indroides ... = 10/1
infumata .. = 6/1
intermissus ... = 18/3
irvinii ... = 10/4
ithiela ... 6/5
Ixias ... 17
jhoda ... = 17/2
jugurtha ... = 7/1
jugurtha ... = 11/1
kalora ... 4/2
kana ... = 15/5
kandha ... 6/8
kausala ... = 17/2
kennedii ... = 18/1
Kibreeta ... = 15
krueperi ... 4/6
lacteola ... 15/6
ladakensis ... 16/5
Lade ... = 10
læta ... 15/3
lagela ... 10/2
lalage ... 10/2
lalassis .. 10/1
lankapura ... 10/7
latifascia ... 10/5
latifasciata ... 17/2
lea ... ... 9/1
leechii ... = 5/1
leechii ... = 16/4
leechii ... 16/10
lena ... = 17/2
Leptosia ... 1
leucacantha ... 6/5
Leucochloe ... = 4
leucodice 5/1
leucogæa ... = 6/6
libythea ... 10/4
libythea ... 15/1
lichenosa ... 9/2
limbata ... 18/5
liquida ... = 9/3
livilla ... = 20/3
lordaca ... = 8/1
lucilla ... 3/1
lurida ... = 10/5
lycorias ... 13/2
lyncida ... 10/5
mahana ... = 10/3
Mancipium ... = 4
marcopolo ... 16/1
marianne ... 17/1
meipona ... 17/2
melaina ... 4/7
melania ... = 10/7
merguiana ... = 15/5
meridionalis ... = 17/1
mesentina ... 8/1
Metaporia ... = 5
metarete ... = 6/3
minna ... 11/4
miranda ... 16/9
modesta ... 18/1
montana ... 4/7
moorei ... 4/3
moorei ... 15/4
moulmeinensis . = 17/2
nabellica ... 5/2
nadina ... 9/3
naganum ... 4/8
nama ... = 9/3
napi ... 4/7
naraka ... 20/2
narendra ... 10/3
nebo ... = 10/8
neombo ... = 10/7
nepalensis ... = 4/11
nepalensis ... 14/1
Nepheronia ... = 20
nerissa ... 9/2
nero ... 10/8
nicobarica ... 1/1
nicobarica ... 10/5
nicobariensis ... 15/5
nilagiriensis ... 16/7
nina ... 1/1
Nirmula ... = 15
nivescens ... = 11/2
nivescens ... = 17/2
nola ... = 17/1
norma ... 10/6
Nychitona ... = 1
ochreipennis ... = 18/3
olferna ... 10/4
oriens .. = 18/4
ormistoni ... 15/7
pallens ... =18/6
pallida ... = 9/2
pallida ... = 13/1
pallida ... 16/7
pallida ... = 17/2
palliseri ... = 18/4
pallitana ... = 15/2
panda ... 10/9
Parapieris ... = 4
paravatar ... 20/1
Pareronia ... 20
parva ... 13/1
pasithoe ... 6/7
patruelis ... = 15/5
paulina ... 10/7
peelus ... = 18/3
pernotatus ... = 18/5
perspicua ... 6/4
phila ... 16. Note
philomela ... 20/3
phisadia ... = 18/7
phryne ... 9/2
phryxe ... 5/4
Piccarda ... = 6
Pieris ... 4
pingasa ... 20/2
pirenassa ... 17/2
pomona ... 11/2
Pontia ... = 4
principalis ... = 10/6
Prioneris ... 7
protractus ... 18/2
pseudevanthe ... = 18/6
pseudolæta ... = 15/3
pseudolalage ... = 10/2
puellaris ... = 18/3
pulla ... = 15/5
purreea ... = 15/5
purus ... = 18/5
pygmæa ... = 17/2
pyramus ... 6/8
pyrene ... 17/2
rama ... = 15/2
remba ... 9/3
retexta ... = 10/4
rhamni ... 14/1
rhexia ... = 17/2
Rhodocera ... = 14
roepstorfii ... = 10/7
roepstorfii ... = 15/4
roepstorfii ... 19/1
rorus ... = 18/3
rosaceus ... = 18/4
rotundalis ... = 15/4
rubella ... = 15/1
Saletara ... = 10
sanaca ... = 6/4
sanguinalis ... = 18/7
sari ... 15/7
sarinoides ... 15/6
satadra ... 17/2
scylla ... 11/3
semiflava ... 10/6
serrata ... = 11/2
seta ... = 7/1
shandura ... 16/10
shawi ... 2/1
shipkee ... = 16/5
shiva ... 10/3
sikkima ... 2/2
sikkima ... 15/2
silhetana ... 15/4
simplex ... = 15/5
simulata ... 15/5
singhapura ... 6/1
sita ... 7/2
sodalis ... 15/7
solaris ... = 18/4
sopra ... = 10/4
soracta ... 5/1
sorex ... = 5/1
spiculifera ... = 20/2
statilia ... = 10/3
stoliczana ... = 16/9
subroseus ... = 18/7
surya ... = 6/5

surya ... = 18/4
swinhoei ... = 10/6
Synchloe ... = 4
Tachyris ... = 10
taplini ... = 18/7
taprobana ... 8/1
taprobana ... 10/5
tarina ... = 20/1
templetoni ... = 15/4
Terias ... 15
thestylis ... 7/1
thrasibulus ... = 16/4
Thyca ... = 6
thysbe ... 6/8
tilaha ... = 15/8
tripuncta ... = 18/4
uniformis ... = 15/4
vacans ... = 10/5
valeria ... 20/3
venata ... 15/2
venosa ... = 3/3
venusta ... = 10/7
verhueli ... 13/1
verna ... = 17/2
vestalis ... 18/3
vipasa ... = 4/4
wallichii ... = 13/2
wardi ... 10/7
watsoni ... = 7/1
watti ... = 17/2
wiskotti ... 16/3
xiphia ... = 1/1
yaksha ... = 10/7
zaneka ... 14/3
zanekoides ... 14/3
zelmira ... = 10/4
zeuxippe ... = 9/2

## Index—DANAIDÆ—C

adamsoni ... = 3/8
æsatia ... 3/2
agarmarschana 1/1
aglea ... 2/1
agleoides ... 2/2
alcathoe ... 3/2
alcippoides ... 2/14
andamanensis ... 3/13
apicalis ... = 3/6
arida ... = 3/16
arracana ... 1/1
asela ... 3/15
aspasia ... 2/3
augusta ... = 3/6
Badacara ... = 2
Bahora ... = 2
binghami ... = 3/15
binotata ... = 3/17
biseriata ... = 3/12
brahma ... 3/8
bremeri ... 3/12
burmeisteri ... = 3/6
cadellii ... = 1/1
Caduga ... = 2
Calliploea ... = 3
camaralzaman... 3/11
camorta ... = 3/9
carpenteri ... = 3/11
castelnaui ... = 3/4
ceylanica ... = 2/1
Chittira ... = 2
chrysippus ... 2/14
core ... 3/15
coreoides ... = 3/18
coreta ... 3/18
corus ... 3/4
crameri ... 3/12
crassa ... 3/6
Crastia ... = 3
crocea ... = 2/3
crowleyi ... = 3/17
cupreipennis ... 3/10
Danais ... 2
Danisepa ... = 3
defigurata ... = 3/14
delone ... 3/16
depunctata ... = 3/17
despoliata ... = 3/3
dharma ... = 3/6
diabolica ... = 1/1
diocletiana ... 3/3
discalis ... = 3/17
dominans ... = 3/14
doubledayi ... 3/2
dravidarum ... 2/10
duarseri ... = 3/1
eclecta ... = 3/8
elisa ... = 3/4
erichsoni ... = 3/6
esperi ... = 3/12
Euploea ... 3
exprompta ... 2/8
frauenfeldii ... 3/12
fumata ... 2/6
gautama ... 2/11
gautamoides ... 2/11
genutia ... = 2/12
godarti ... 3/14
grammica ... = 2/1
grantii ... = 3/6
grotei ... = 3/17
grynion ... = 2/12
hadenii ... 1/1
hamiltoni ... = 3/6
harrisi ... 3/17
hegesippus ... = 2/13
Hestia ... 1
hopei ... 3/17
hypermnestra ... 1/2
illustris ... = 3/6
imperialis ... = 3/6
indicus ... 2/13
indigofera ... = 3/6
irawada ... = 3/8
Isamia ... = 3
jasonia ... 1/1
kalinga ... 3/1
kanarensis ... 1/1
Karadira ... = 3
klugii ... = 2/14
klugii ... 3/6
kollari ... 3/6
lankana ... = 3/18
layardi ... 3/15
lazulina ... = 3/7
ladereri ... 3/5
leucogonys ... 3/7
leuconoe ... 1/3
leucostictos ... 3/7
limborgii ... 3/16
Limnas ... = 2
limniace ... 2/9
linnæi ... = 3/1
linteata ... 1/2
lynceus ... 1/1
maclellandi ... 3/6
magnifica ... = 3/16
Mahintha ... = 3
malabarica ... 1/1
margarita ... = 3/8
margherita ... = 1/1
masoni ... = 3/6
mazares ... 3/5
melaneus ... 2/4
melanippus ... 2/13
melanoides ... 2/1
melanoleuca ... 2/1
melissa ... 2/10
Menama ... = 3
menetriesii ... 3/16
microsticta ... = 3/17
midamus ... 3/8
modesta ... 3/10
montana ... 3/18
mulciber ... 3/1
musikanos ... 2/10
mutina ... 2/9
Narmada ... = 3
Nectaria ... = 1
neopatra ... = 2/4
nesippus ... 2/13
nicevillei ... = 3/15
nicobarica ... 2/8
nilgiriensis ... 2/7
nipalensis ... = 2/12
noblei ... = 3/8
novaræ ... 3/7
olivacea ... = 3/12
Pademma ... = 3
Parantica ... = 2
pembertoni ... = 3/6
Penoa ... = 3
phœbus ... 3/4
phormion ... = 2/1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| pinwilli | ... | = 3/16 | rothneyi | ... | = 3/6 | taprobana | ... = 2/6 |
| platanistos | ... | 2/4 | Salatura | ... | = 2 | tavoyana | ... = 3/10 |
| plexippus | ... | 2/12 | Salpinx | ... | = 3 | tira | ... = 2/5 |
| poeyi | ... | = 5/16 | scherseri | ... | 3/9 | Tirumala | ... = 2 |
| pygmæa | ... | = 3/17 | septentrionis | ... | 2/10 | Tiruna | ... = 3 |
| Radena | ... | = 2 | sherwilli | ... | = 3/6 | Trepsichrois | ... = 3 |
| ramsayi | ... | 3/3 | siamensis | ... | 1/3 | Tronga | ... = 3 |
| recussa | ... | = 3/14 | similis | ... | 2/8 | tytia | ... 2/5 |
| regalis | ... | = 3/6 | simulatrix | ... | = 3/9 | uniformis | ... = 3/6 |
| regina | ... | = 3/17 | sinhala | ... | 3/6 | vermiculata | ... 3/15 |
| reinwardtii | ... | 1/1 | sita | ... | 2/5 | vestigiata | ... = 3/7 |
| rhadamanthus | .. | = 3/3 | splendens | ... | 3/8 | vitrina | ... 3/4 |
| rœpstorfii | ... | 3/6 | Stictoplœa | ... | = 3 | vulgaris | ... 2/8 |
| rogenhoferi | ... | = 3/8 | subdita | ... | = 3/15 | | |


## Index—SATYRIDÆ—D


| | | | | | | | |
|---|---|---|---|---|---|---|---|
| actæa | ... | 9/2 | baldus | ... | 14/14 | Chortobius | ... = 7 |
| aculeata | ... | = 22/3 | bara | ... | 14/12 | chrishna | ... 20/3 |
| adamsoni | ... | 2/2 | bela | ... | 22/2 | chumbica | ... 11/2 |
| adamsoni | ... | 19/1 | beelinga | ... | = 17/2 | cinerea | ... = 16/1 |
| adolphei | ... | 2/20 | bethami | ... | 2/30 | Cœlites | ... 19 |
| æmate | ... | 2/3 | bethami | ... | 22/2 | Cœnonympha | ... 6 |
| affectata | ... | 14/16 | bhadra | ... | 3/50 | cœnonympha | ... 7/4 |
| Agapetes | ... | = 12 | bhairava | ... | 3/38 | complexiva | ... = 14/2 |
| Agrusia | ... | = 25 | bhima | ... | 3/51 | confusa | ... 3/27 |
| alberta | ... | = 3/44 | bicolor | ... | 10/1 | cortona | ... 25/7 |
| albofasciata | .. | 2/5 | binghami | ... | 19/2 | cottonis | ... 25/2 |
| alemola | ... | = 14/6 | Blanaida | ... | =3 | crisilda | ... 18/1 |
| alkibie | ... | = 14/2 | blasius | ... | 2/9 | crito | ... 18/1 |
| Amecera | ... | = 4 | bolanica | ... | 14/11 | critolaus | ... 18/1 |
| ampa | ... | = 22/2 | brahminoides | ... | 11/1 | critolina | ... 18/1 |
| Anadebis | ... | 21 | brahminus | ... | 11/1 | Culapa | ... = 2 |
| anaxias | ... | 2/3 | brevistigma | ... | 7/8 | Cyllo | .. = 22 |
| anexioides | ... | 2/4 | brisanda | ... | 3/32 | Cyllogenes | ... 23 |
| andamana | ... | 2/12 | Bruasa | ... | = 25 | dædalea | ... = 14/2 |
| andamanica | ... | 22/3 | burmana | ... | 14/6 | dædalion | ... 25/4 |
| andersoni | ... | 3/4 | burmensis | ... | 25/12 | daksha | ... 13/4 |
| andersonii | ... | 25/13 | cadesia | ... | = 9/4 | Dallacha | ... = 13 |
| angularis | ... | 17/1 | cæca | ... | 13/7 | damaris | ... 5/1 |
| annada | ... | 13/7 | Callerebia | ... | = 13 | dara | ... 25/4 |
| annamitica | ... | 2/29 | Calysisme | ... | = 2 | daretis | ... 3/26 |
| anthe | ... | = 8/3 | carpenteri | ... | = 2/10 | Dasyomma | ... = 2 |
| apara | ... | = 3/27 | cashapa | ... | = 13/4 | davendra | ... 7/8 |
| apicalis | ... | = 14/10 | cashmirensis | ... | 4/4 | davisonii | ... 2/30 |
| archaica | ... | 20/3 | casiphone | ... | 25/9 | Debis | ... = 3 |
| Arge | ... | 12 | catharina | ... | = 14/10 | decolorata | ... = 22/3 |
| argentina | ... | 17/3 | caudata | ... | 25/1 | delia | ... = 17/3 |
| ariaspa | ... | = 14/2 | centralis | ... | 7/5 | deliades | ... = 3/5 |
| armandii | ... | 3/49 | cepheus | ... | = 2/9 | determinata | ... = 22/1 |
| asia | ... | 3/2 | cerealis | ... | 14/12 | deva | ... 25/12 |
| asterope | ... | 14/6 | ceylonica | ... | 14/9 | diademoides | ... 21/2 |
| aswa | ... | = 22/2 | chandica | ... | 3/41 | diffusa | ... 8. Note |
| aswina | ... | = 22/2 | charaka | ... | 2/6 | digna | ... 9/1 |
| atkinsonia | ... | 3/19 | Charma | ... | = 3 | dinarbas | ... 3/31 |
| atletes | ... | 22/3 | Chazara | ... | = 8 | Dionana | ... = 3 |
| Auiocera | ... | 11 | cheena | ... | 7/5 | diriphia | ... = 3/35 |
| austeni | ... | 14/20 | chelensis | ... | 25/11 | distans | ... 3/42 |
| avanta | ... | 14/12 | chenui | ... | 14/8 | dohertyi | ... 13/9 |
| avatara | ... | = 11/2 | chitralica | ... | 7/8 | dohertyi | ... 14/19 |
| baladeva | ... | 3/2 | chitralica | ... | 13/2 | dokwana | ... 11/1 |
| baldiva | ... | 8/4 | Chonala | ... | = 4 | dolopes | ... = 3/44 |

dolorosa ... = 25/3
drusia ... = 2/10
drypetis ... 3/25
dura ... 3/22
duryodana ... = 22/3
Dyctis ... = 25
dynsate ... 3/34
dyrta ... 3/24
elwesi ... 3/17
Elymnias ... 25
embolina ... = 3/25
enervata ... 8/3
Enope ... = 3
epiminthia ... 19/2
Epinephele ... = 7
Erebia ... 13
Erites ... 17
esaca ... 25/13
Ethope ... = 21
Eumenis ... 8
Euplœamina ... = 21
europa ... 3/23
evansii ... 2/18
eversmanni ... 4/4
falcipennis ... 17/2
flanona ... 3/41
francisca ... 2/5
fraterna ... 25/1
fulva ... 11/2
fuscum ... 2/8
gafuri ... 3/1
galkissa ... 22/2
gamaliba ... = 16/1
gambara ... 3/27
gammiel ... 3/22
ganapati ... 22/2
Gareris ... = 2
garuna ... 11/3
gela ... = 14/18
gelduba ... = 3/7
gellia ... = 14/9
gemina ... 3/1
goalpara ... 3/20
gokala ... 22/3
gomia ... = 2/5
goolmurga ... = 7/4
gopa ... = 2/5
gotama ... 2/6
gulnihal ... 3/37
halimede ... = 12/1
hanifa ... = 8/3
Hanipha ... = 3
harmostus ... = 5/1
Hemadara ... = 13
heri ... 2/25
hesione ... = 16/1
heydenreichi ... 8/2
hilaris ... 7/3
hilda ... 20/1
himachala ... 21/1
Hipio ... = 22
howra ... = 14/10
hubneri ... 9/4
hubneri ... 14/10
humei ... = 14/14
hyagriva ... 13/8
hybrida ... 13/6
hypermnestra ... 25/1
hyrania ... = 3/31
iarba ... 14 Note
igilia ... 2/11
indecora ... 14/15
indistans ... = 2/12
inica ... 14/2
insana ... 3/31
intermedia ... = 2/13
intermedia ... = 13/4
interposita ... = 7/5
irma ... 3/10
ismene ... 22/1
issa ... ... = 3/37
jalaurida ... 3/17
janetæ ... 23/1
jocularia ... = 14/10
junonia ... 2/32
justina ... = 2/10
Kabanda ... = 2
kabrua ... 3/16
kala ... 13/4
kalinda ... 13/2
kalinga ... 22/3
kanetisa ... = 9
kanjupkhula ... 3/12
kansa ... 3/45
Karanasa ... 9
kashmira ... 14/10
kashmirica ... 7/5
Kerrata ... = 3
khasia ... 2/16
khasiana ... = 2/31
khasiana ... = 3/49
kohimensis ... 2/30
Kolasa ... = 14
kurrama ... 11/3
ladesta ... = 3/44
langii ... = 2/27
Lasiommata ... = 7
latiaris ... 3/36
latistigma ... 7/8
laurion ... = 4/3
leda ... 22/1
leechii ... = 9/3
lehana ... 8/4
lepcha ... 2/30
Lethe ... 3
leucocyma ... = 25/8
Loesa ... = 2
loha ... 11/2
Lohana ... = 15
lupinus ... 7/4
lurida ... = 2/9
lycoides ... 14/3
lycus ... 14/3
Lyela ... = 6
lyncus ... 3/15
macmahoni ... 6/1
madrasa ... 14/14
mæroides ... = 4/1
magna ... 9/2
mahratta ... 14/6
maianeas ... 2/1
maitrya ... 3/8
maiza ... = 7/4
malelas ... 25/8
malsara ... 2/28
malsarida ... 2/31
mamerta ... 2/29
mandane ... 7/7
Mandarinia ... 1
mandata ... 16/1
mani ... 13/1
manii ... 2/3
Maniola ... 7
margaritæ ... 3/30
marshalli ... = 14/14
marshallii ... 24/1
masoni ... 4/5
matinia ... = 14/20
medus ... 16/1
megalia ... 14/1
megalomma ... 14/1
mekara ... 3/40
Melanargia ... = 12
Melanitis ... 22
Melynias ... = 25
menava ... 4/1
mercea ... 2/15
merula ... = 25/1
mestra ... 2/24
methora ... 14/18
Mimadelias ... = 25
mimus ... 25/3
minerva ... 3/39
mineus ... 2/10
miranda ... = 2/3
misenus ... 2/26
mnasicles ... 2/22
mniszechii ... 8/4
modesta ... = 9/4
modesta ... = 13/4
mœlleri ... 3/18
mœrula ... 4/3
monoculus ... = 7/5
montana ... = 12/1
moorei ... 4/6
moorei ... 9/3
muirheadi ... 3/51
Mycalesis ... 2
Mydosama ... = 2
myops ... 6/1
Myrtilus ... = 2
mystes ... 2/19
nada ... = 3/35
nada
Nadiria ... = 14
naga ... 3/29
naganum ... 3/33
namura ... = 3/41
nana ... 9/2
narasingha ... 13/9
nareda ... 14/4
narica ... 7/6
narkanda ... 3/20
nautilus ... 2/7
Nemetis ... = 3

## Index—AMATHUSIIDÆ—E


Aemona 3
aliris 6/2
Amathusia 71
amathusia
Amathuxidia
amethystus 9/1
amplifascia 6/1
amythaon 8/1
andamanica 7/1
andamanensis : 10/4
arcesilaus 2/1
assama 2/2
aurelius 9/3
busiris 1/1
camadeva 4/2
camadevoides 4/2
celinde : 10/4
ceylonica 10/3
chersonesia 9/2
Clerome = 2
continentalis 10/4
cycnus 11/1
deo 10/2
despoliata : 10/1
diores 5/1
Discophora 10
doubledayi ... 9/2
Enispe ... 11
eumeus ... 2/2
euthymius ... 11/2
Faunis 2
faunula 2/3
faunuloides 2/3
friderici 7/1
fruhstorferi 4/4
godfreyi 4/5
howqua 4/3
incerta 2/2
indica 10/1
intermedia 6/2
intermedia : 11/2
lathyi 6/1
lena 3/2
lepida 10/3
louisa 4/4
lucipor 5/2
masoni 9/1
melæna : 11/2
Melanocyma = 2
muscina 10/1
nagaensis 4/2
Nandogæa = 5
nicevillei ... 4/2
nourmahal ... 4/1
nurinissa ... 4/1
obscura ... = 1/1
pealii ... = 3/1
phidippus ... 7/1
portheus ... = 8/1
pseudaliris 6/2
ramdeo = 5/1
semineclis : 10/4
significans : 10/3
silhetensis : 11/2
sparta 4/3
spiloptera 10/4
Sticopthalma 4
tessellata 11/2
Thaumantis 5
Thauria 6
tullia 10/1
tytleri 4/4
verbanus 11/1
westwoodi = 8/1
Xanthotænia 1
zal 10/1
Zeuxidia 9


## Index—NYMPHALIDÆ—F


abiasa ... 25/9
abnormis ... = 45/2
aborica ... 2/8
aborica ... 14/1
Abrota ... 23
Acidalia ... = 39
acontius ... 18/14
aconthea ... = 18
acutipennis ... 25/11
adamsoni ... = 1/3
adamsoni ... 25/1
adara ... 26/6
adima ... 18/6
adipala ... = 26/7
adippe ... 39/6
Adolias ... 19
adustata ... = 18/3
ænaria ... = 35/3
æsis ... 36/10
afghana ... = 27/4
Agatasa ... = 3
aglaia ... 39/7
Aglais ... = 36
agna ... 1/2
agnicula ... 36/6
agrarius ... 2/2
albina ... 9/2
albofasciata ... 34/3
alcippe ... 42/2
alcippoides ... 30/1
alcippoides ... 42/2
alesia ... = 26/1
almana ... 35/4
alompra ... 34/4
altissima ... 39/10
amala ... = 10/1
amba ... = 26/10
ambica ... 7/5
amboides ... = 26/10
amœnula ... = 40/5
amorosca ... 26/2
anagama ... 18/14
ananta ... 26/15
anarta ... 24/7
ancus ... = 26/8
andamana ... 8/1
andamana ... 26/6
andamana ... 33/1
andamana ... 42/2
andamana ... 47/1
andamanensis ... 50/2
andamanica ... 27/2
andamanica ... 27/4
andamanica ... 41/1
andamanicus ... 2/2
andersoni ... 18/3
Andrapana ... = 24
angelica ... 3/2
angustata ... 8/1
anjana ... 26/14
anjira ... 45/3
anomala ... 30/3
anomala ... 51/1
anosia ... 18/9
antilope ... 26/18
antilope ... 30/3
antiopa . 36/13
anyte . = 18/2
aonis . = 35/3
aoris . 45/2
Apatura . 7
aphidas . = 18/10
apicalis . = 18/12
apicalis . = 20/1
appiades . 18/6
Apsithra . 27
arasada . 18/17
Araschnia . 37
arcesia . 40/5
Argynnis . 39
argyrioides . = 33/1
arhat . 18/8
ariadne . 49/1
aristogiton . 1/3
arja . 2/3
aruna . = 39/1
asela . 44/1
ashretha . 39/7
asita . 25/2
asitina . = 25/2
asoka . 18/2
aspasia . 26/20
assama . = 38/3
assama . 49/2
assamensis . 2/1
assamica . 26/29
asterie . = 35/4
asthala . = 38/3
astola . 26/6

asura ... 25/13
atacinus ... 7/8
atana ... = 27/3
Atella ... 42
athamas ... 2/2
Athyma ... = 25
atiya ... = 9/2
atkinsoni ... = 34/2
atlites ... 35/5
atomaria ... = 31/1
attenuata ... = 18/18
attenuata ... 21/1
aurelia ... 26/30
auricoma ... = 44/1
austenia ... 24/1
Auzakia ... = 24
avia ... = 30/2
bahula ... = 25/4
bajadeta ... = 45/6
balarama ... = 18/6
balba ... 40/5
balbita ... 40/5
baralacha ... = 39/13
basalis ... = 33/1
Bassarona ... = 18
belisama ... 3/1
bernardus ... = 1/2
Bhagadatta ... = 24
bharata ... = 2/2
bhavara ... = 7/5
biblis ... 47/1
Bimbisara ... = 26
binghami ... 15/3
binghami ... 18/11
binghami ... 26/2
binghami ... 27/1
binghami ... = 39/2
birmana ... 32/1
bisaltide ... 33/1
boisduvali ... = 34/2
bolina ... 30/2
Boloria ... = 39
brabira ... 38/3
brahma ... 14/1
Brenthis ... = 39
buckleyi ... = 34/2
buddha ... 14/1
burmana ... 26/13
burmana ... 42/2
Byblia ... 48
cacharica ... = 26/8
c-album ... 36/1
calidasa ... 24/7
Calinaga ... 14
calydonia ... 3/1
cama ... 25/3
camboja ... = 26/27
camiba ... 7/8
camida ... = 25/3
canace ... 36/3
cardui ... 36/1
cartica ... 26/13
carticoides ... = 26/13
cashmirensis ... 36/10
Castalia ... = 9
castelnaui ... 50/1
castetsi ... 39/1
centralis ... 2/7
cerynthus ... 1/7
Cethosia ... 47
ceylonica ... 33/1
ceylonica ... 42/2
Chalinga ... = 24
chandra ... 9/1
chandrana ... 9/1
Charaxes ... 1
charon ... = 26/3
charybdis ... = 30/2
Chendrana ... = 25
Chersonesia ... 28
chersonesia ... 38/2
chersonesus ... 2/6
chevana ... 7/6
childreni ... 39/2
Chitoria ... = 7
chitralensis ... 7/5
chitralensis ... 39/14
chitralensis ... 40/3
chlaena ... = 24/7
Chucapa ... = 18
cibaritis ... 18/5
Cinclidia ... = 40
cineracea ... = 26/3
cingara ... = 33/1
cinnamoneus ... 10/2
circe ... = 44/1
Cirrochroa ... 45
clara ... 39/9
clarissa ... 46/1
clerica ... 25/9
clinia ... 26/8
cnacalis ... 26/32
cnidia ... = 39/3
cocles ... 27/2
cocytus ... 18/1
cognata ... = 18/3
cognata ... 36/6
cognata ... = 45/4
columella ... 26/1
Condochates ... = 25
consimilis ... 10/1
continentalis ... 33/1
cooperi ... 7/1
corax ... 1/2
cotanda ... 38/3
cresina ... 26/4
Cupha ... 41
curvifascia ... 18/22
curiosa ... = 30/2
cyane ... 47/3
cyaneus ... 20/1
cyanepardus ... 19/1
cydippe ... 26/19
Cynitia ... = 18
Cynthia ... 44
Cyrestis ... 27
danava ... 24/2
daraxa ... 24/4
darlisa ... 15/2
daruka ... = 38/1
delmana ... = 18/2
delphis ... 2/11
derma ... 18/26
desa ... = 1/3
Diagora ... 11
Dichorragia ... 16
dichroa ... 9/1
didyma ... 40/3
Dilipa ... 5
diluta ... = 24/7
dindinga ... 26/29
diocippus ... = 30/1
diocletiana ... = 10/1
dirtea ... 19/3
dirteoides ... = 19/2
discispilota ... 18/8
disrupta ... = 26/6
distanti ... 1/6
diversa ... = 18/14
djalia ... = 9/2
dodgsoni ... = 40/4
dohertyi ... 37/1
Doleschallia ... 33
dolia ... = 19/2
dolon ... 2/7
Dophla ... = 18
dorelia ... 26/27
doubledayi ... = 18/25
doubledayi ... 22/1
doubledayi ... = 34/1
Dravira ... = 7
Dryas ... = 39
Ducapa ... = 45
duda ... 18/19
dudu ... 24/5
dunya ... 18/30
durga ... 18/20
durnfordi ... 1/2
earliei ... 27/1
ebusa ... 26/17
egea ... 36/4
egna ... = 30/2
elicius ... 18/13
elwesi ... 24/9
emalea ... 45/6
emodes ... = 26/6
ephebus ... 2/5
epiona ... = 18/25
Ergolis ... 49
Eriboea ... 2
eriphyle ... 18/12
erota ... 44/1
erymanthis ... 41/1
eudamippus ... 2/10
eugenia ... 39/11
Eugonia ... = 36
Eulaceura ... 6
Eulepis ... = 2
eupales ... 39/13
euphrone ... = 15/1
eurinus ... = 10/1
Euripus ... 10
eurymene ... = 26/6
eurynome ... = 26/6
Euthalia ... 18

Euvanessa ... = 36
evelina ... 18/26
fabius ... 1/7
fasciata ... 45/1
Felderia ... = 18
ferghana ... 40/2
fervescens ... 36/11
fervida ... 36/12
flavobrunnea ... = 45/1
florenciæ ... 7/3
foliacea ... = 34/2
formosa ... 27/2
franciæ ... 18/18
franckii ... 3/2
fraterna ... = 22/1
fraterna ... 42/2
fulica ... = 18/14
fuliginosa ... 26/17
fulva ... = 32/1
funebris ... 13/1
galara ... = 18/18
gambrisius ... 20/1
ganescha ... 27/4
ganga ... 23/1
garlanda ... = 7/5
garuda ... 18/14
gautama ... 14/1
gemmata ... 39/12
generator ... = 39/13
glaucescens ... 50/2
godarti ... 18/2
gonotata ... = 26/7
goodrichi ... = 18/29
grandis ... 2/7
Grapta ... = 36
gulussa ... = 10/2
gupta ... 18/29
gyrtona ... = 10/2
haliartus ... = 10/2
halitherses ... = 10/2
hallirothius ... = 10/1
hamasta ... = 2/2
hampsoni ... 26/8
Haramba ... = 18
Haridra ... = 1
harita ... 26/12
haronica ... 36/3
harpax ... 1/2
hebe ... 2/6
hegemone ... 39/15
Helcyra ... 4
heliodore ... 26/27
hemana ... 1/2
hemina ... 4/1
here ... 7/4
Herona ... 8
Hestina ... 12
hierax ... 1/2
hierta ... 35/1
himalaya ... 36/3
hippoclus ... 38/1
hipponax ... 1/2
hoppferi ... = 35/6
horatius ... = 27/2
hordonia ... 26/32
horsfieldii ... 34/1
horsfieldii ... 50/2
huegeli ... 34/2
huttoni ... = 34/2
hybrida ... 39/1
hydaspes ... 24/8
hylas ... 26/6
hypatia ... 38/2
hyperbius ... 39/1
Hypolimnas ... 30
hypsea ... 47/4
hypselis ... 38/3
hypsina ... 47/4
hysudra ... 38/4
idita ... 25/13
ilia ... 7/4
ilythyia ... 48/1
imna ... 1/2
inachus ... 34/2
inara ... 25/2
inaria ... 30/1
inarina ... = 25/2
indica ... 18/17
indica ... 27/4
indica ... 33/1
indica ... 36/2
indica ... 49/1
intermedia ... 19/2
interposita ... 36/5
iphigeneia ... 30/2
iphita ... 35/6
isa ... 10/2
ismene ... 21/1
isocratia ... = 35/2
Isodema ... = 15
issœa ... 39/8
Issoria ... 43
Itanus ... = 18
iva ... 18/24
jacintha ... = 30/2
jadeitina ... 19/3
jainadeva ... 39/6
jahnita ... 18/7
jahnu ... 18/7
jalinder ... 1/2
jalysus ... 2/5
jama ... 18/15
jamblichus ... 2/10
jamida ... 18/15
japroa ... 18/18
jermyni ... = 11/2
jerdoni ... 39/14
jina ... 25/15
jiraria ... = 45/2
julii ... 18/6
jumbah ... 26/2
jumna ... = 23/1
Junonia ... = 35
kahruba ... 1/5
kallaura ... 26/7
kallima ... 34
kamala ... 39/3
kamarupa ... 26/3
kanara ... 25/4
kanara ... 26/26
kanda ... 18/13
Kaniska ... = 36
kankena ... 26/1
karwara ... 25/10
kesava ... 18/8
khasiana ... = 18/6
khasiana ... 19/2
khasiana ... 26/3
khasiana ... 38/1
khasianus ... = 1/2
khimalara ... = 1/2
kirbariensis ... 26/19
Kironga ... = 25
Kirontisa ... = 18
knyvetti ... = 34/4
korla ... 39/18
kresna ... = 25/6
kuhasa ... = 26/27
kumana ... 6/2
Labranga ... = 18
ladakensis ... 36/8
l-album ... 36/7
lanka ... 45/4
laodice ... 39/5
laomedia ... = 35/5
Laringa ... 50
larymna ... 25/2
Lasippa ... = 26
lathonia ... 39/8
laudabilis ... 18/26
Lebadea ... 21
Lemonias ... = 40
lemonias ... 35/3
lepidea ... 18/3
leuconota ... = 26/8
leucothœ ... = 26/6
ligyes ... 24/8
lilæa ... 38/3
limborgi ... 34/2
Limbusa ... = 18
Limenitis ... 24
lioneli ... 46/1
liria ... 30/2
lisarda ... 15/1
lissainei ... 4/8
lotis ... 41/1
lubentina ... 18/17
lucina ... = 38/1
luctuosa ... = 30/2
lunuwara ... = 1/4
mackinnoni ... 39/11
mackwoodi ... 34/1
madeus ... 2/2
magadha ... 26/3
magna ... 35/1
magniplaga ... 2/7
mahadeva ... 18/11
Mahaldia ... = 18
mahendra ... 26/5
mahesa ... = 25/10
mahratta ... 47/2
maia ... 39/4
maja ... 41/1
malabarica ... 33/1
mamaja ... = 26/6

mananda ... 26/7
manasa ... 26/21
manipuriensis 6/1
manis ... 39/9
marathus ... 8/1
marmax ... 1/4
marmorata ... 34/2
Marpesia ... = 27
martabana ... = 26/1
martha ... 21/1
masinia = 4/1
meetana ... = 26/6
melba ... 26/18
melita ... 30/2
Melitæa ... 40
Mellicta ... = 40
mena ... = 11/2
mercea ... 42/2
merguia ... 15/3
merguiana ... 33/1
meridionalis ... 10/1
meridionalis ... 18/14
merilia ... = 18/14
merione ... 49/2
merta ... 18/12
miah ... 26/16
mihintala ... 15/1
Mimathyma ... = 7
minorata ... 49/1
misippus ... 30/1
mithila ... 45/3
mixta ... 40/4
mixta ... = 47/1
miyana ... 18/3
Moduza ... = 24
mohmandorum = 39/6
monilis ... = 18/28
moorei ... 2/4
moorei ... 25/6
morgiana ... 5/1
Murwareda ... = 2
nadaka ... 18/23
naga ... 7/2
naga ... 26/23
naganum ... 1/2
nais ... 18/27
Najas ... = 24
nalanda ... 26/2
nama ... 12/25
namba ... 26/15
namouna ... = 7/5
nana ... 26/23
nanda ... 26/8
nar ... 26/10
nara ... 18/21
narayana .. 18/2
narayana ... 26/233
narcæa ... 2/8
nashona ... 26/14
nata ... 26/4
natta ... 27/2
neda ... = 10/2
nefte ... 25/2
nepenthes ... 2/9
Neptis ... 26
nesimachus ... 16/1
Neurosigma ... 22
nicea ... 17/1
nicevillei ... 11/2
nicevillei ... = 49/2
nicholli ... 1/1
nicobarica ... 26/6
nicobarica ... 41/1
nicobarica ... 45/7
nicobarica ... 47/1
nicobariensis ... 35/4
nietneri ... 47/2
nigrobasalis ... 2/10
nilgirica ... 26/1
nimbata ... = 33/1
niphanda ... 38/4
niphe ... = 39/1
nivalis ... 27/3
nivea ... 27/3
nobilior ... = 27/4
nolana ... 26/16
nonius ... 22/1
Nora ... = 18
nubicola ... 36/2
nyctelius ... 10/2
nycteus ... 26/22
ochracea ... 26/15
ocyale ... = 35/2
oenone ... = 35/1
olivacea ... 45/2
opalina ... 25/8
ophiana ... 26/1
orientalis ... 25/8
orientalis ... = 40/5
orissa ... 40/8
orithyia ... 35/2
ornamentalis ... = 10/2
osteria ... 6/2
pademoides ... =0/4
pales ... 39/13
pallens ... = 26/25
pallida ... 39/16
pallida ... 43/1
pallida ... 44/1
pallidior ... 49/1
pandassana ... = 26
pandora ... = 39/4
pantoporia ... 25
paona ... 26/31
paraka ... 26/26
Parasarpa ... = 24
Parathyma ... = 25
Pareba ... 51
Parhestina ... = 11
parisatis ... 7/8
Parthenos ... 20
parvata ... 7/7
parvata ... = 18/16
pasargades ... 39/4
patala ... 18/24
patenas ... = 35/2
pelea ... 18/4
Penthema ... 15
peraka ... 28/3
periander ... 27/1
perius ... 25/14
persea ... = 40/4
persicaria ... 35/3
persimilis ... 11/1
phalanta ... 42/1
pharis ... 49/2
phemius ... 18/16
phesimensis ... 26/22
philarchus ... 34/1
phœacia ... = 7/2
pholoe ... 36/2
phorkys ... 25/7
phycites ... = 35/2
placida ... 41/1
plagiosa ... = 26/32
pleistoanax ... 1/2
pluviatalis ... 35/6
polibete ... = 33/1
polychloros ... 36/12
Polygonia ... = 36
polynice ... 32/1
polyxena ... 1/2
pratipa ... = 33/1
pravara ... 25/11
Precis ... 35
procris ... 24/7
prorsoides ... 37/1
Prothœ ... 3
psaphon ... 1/2
pseuderiphyle ... = 18/12
Pseudergolis ... 29
pseudovikasi ... 26/11
psittacus ... 18/17
pura ... ... = 44/1
purpura ... 39/7
purpurascens ... 24/1
Pyrameis ... = 36
quilta ... 26/10
radha ... ... 26/24
Rahinda ... = 26
rahria ... 28/2
rahrioides ... 28/2
raidhaka ... = 1/7
rajah ... 18/18
ramsayi ... = 34/2
ranga ... 25/10
Rangasa ... = 18
rangoonensis ... = 18/8
Rathora ... = 39
recta ... ... 18/28
regalis ... 3/2
relata ... = 45/4
reta ... ... 25/6
Rhinopalpa ... 32
risa ... ... 28/1
rizana... ... 36/9
robertsi ... = 40/4
rœberi ... 2/3
rœpstorfii ... 20/1
rossa ... ... 1/2
rudra ... 39/5
rufula ... 35/2
sabina ... 31/1
sabulosa ... = 31/1
sahadeva ... 18/28

saitaphernes ... 18/9
sakontala ... 39/2
saloma ... 44/1
samanda ... =18/7
samatha ... 2/2
sancara ... =18/16
sandakanus ... 2/4
sankara ... 26/10
Saparona .. =18
Sasakia ... 13
satropaces ... 18/1
sattanga ... 26/27
saxatilis ... 40/2
schreeberi ... 2/1
sedeva ... 18/6
selenophora ... 25/4
seneca ... 8/1
Sephisa ... 9
serendiba ... 1/2
shandura ... 40/1
shania .. 18/21
shania ... 23/29
siamensis ... 25/12
siccata ... 35/6
siccifolia ... 34/2
sikkima ... 26/9
sikkimensis ... 40/5
silana ... 38/5
simplex ... =48/1
sindura ... 40/5
sinha ... 43/1
sinis ... =38/3
sinuata ... 26/32
sipora ... 39/13
sitis ... ... =26/15
siva ... .. =22/1
sivokana .. =38/3
soma ... 26/7
Sonepisa ... =18
sordice ... 51/1
sordida ... 7/2
splendens ... 18/20
Stabrobates ... 26
sthavara ... 18/3
Stibochiona ... 17
stramentica ... 45/2
suavior ... =26/11
subrata ... =25/6
subucula ... 17/1
subviolacea ... =30/2
sudassana ... 14/1
sudhodana ... 18/14
sulphureus ... 1/7
sulpitia ... 25/1
sunta ... ... =10/1
surya ... ... =45/5
susruta ... 26/8
swinhœi ... 35/2
swinhœi ... =45/4
Sykophages ... =27
sylvia ... 20/1
Symbrenthia ... =38
Symphædra ... =18
tabula ... 27/5
Tacola ... =25
Tacoræa ... =25
Tanæcia ... =18
taooana ... 18/25
tapestrina ... 49/2
taprobana ... 39/1
taprobana ... 49/2
Tasinga ... =18
Tatisia ... =25
telchinia ... 18/10
Telchinia ... 52
Terinos ... 46
teuta ... 18/29
teutoides ... 18/29
thais ... 45/4
thamala ... =26/17
Tharasia ... 25
thebava ... =47/1
thyodamas ... 27/4
tibetana ... =36/6
tisamena ... 47/1
tisamenus ... 2/1
torsa ... ... 10/1
transiens ... =28/1
triocellata ... =44/1
triquilla ... =10/1
trivena ... 24/8
trivia ... 40/4
tyche ... 45/8
ulupi ... 7/3
undifragus ... =24/7
undina ... 35/4
uniformis ... =3/2
uredenophora ... =34/2
urticæ ... 36/9
vaisya ... 3/53
Vanessa ... 36
varmona ... 26/6
vasanta ... 18/14
vasuki ... 31/1
vau-album ... 36/7
verena ... 18/15
veria ... =9/2
vernus ... =2/3
vesta ... 51/1
vikasi ... 26/11
vinaya ... 15/3
violæ ... 52/1
viraja ... 26/26
virens ... 20/1
virescens ... =18/6
viridicans ... 1=7/1
viridis ... 36/3
vitatha ... 39/7
wardi ... 2/1
wardi ... =34/1
watti ... =1/2
wedah ... 29/1
xanthomelas ... 36/11
xiphiones ... 18/6
yedanula ... 36/13
yerburyi ... 26/9
yoma ... 15/3
Yoma ... 31
yopsla ... = 39/7
zaida ... 26/25
Zalapia ... = 18
zanoa ... = 7/5
zayla ... 24/3
zella ... 11/1
zeroca ... 25/5
zichri ... = 11/1
zulema ... 24/6


## Index—ERYCINIDÆ—G


Abisara ... 4
abnormis ... 4/5
adonira ... 3/6
allica ... = 2/1
alompra ... 1/5
angelica ... 3/7
angulata ... 4/5
Archigenes ... = 4
argentea .. 3/6
attenuata ... 4/4
Balonca ... ... = 3
bifasciata ... 4/5
binghami ... = 3/7
boulteri ... 6/1
burnii ... 4/8
carma ... 1/3
celtis ... 1/1
chela ... 4/3
chelina ... = 4/2
confucius ... = 2/1
deodata ... 3/7
dipœa ... 3/2
Dodona ... 3
dracon ... 3/2
durga ... 3/1
echerius ... 4/5
egeon ... 3/4
eugenes ... 4/5
fasciata ... 5/2
flegyas ... 2/1
fraterna ... = 4/5
fylla ... 4/1
fyllaria ... = 4/1
geoffroyi ... 1/5
gratius ... 4/2
haquinus ... 5/2
hauxwelli ... 1/5
indicus ... 2/1
jhana ... = 4/5
kalawna ... 4/3
kausambi ... 4/6
kausambioides... 4/7
Laxita ... 6
lepita ... 1/2
lepitoides ... 1/2

libera ... = 1/3
Libythea ... 1
longicaudata ... 3/7
moulmeinus ... = 5/2
myrrha ... 1/3
narina ... 1/4
neophron ... 4/2
neophronides ... 4/2
nostia ... 3/2
nymphidia ... 7/1
ouida ... 3/5
paionea ... 4/6
phlegra ... 3/5
prunosa ... 4/5
rama ... 1/3
rohini ... 1/4
sanguinalis ... 1/3
savitri ... 4/4
sawaja ... 5/1
Sosibia ... = 4
Sospita ... = 4
Stiboges ... 7
suffusa ... 4/5
Taxila ... 5
telesia ... 6/1
thuisto ... 5/1
venox ... 3/3
Zemeros ... 2


## Index—LYCÆNIDÆ—H


aberrans ... = 30/6
aberrans ... 50/70
abnormis ... 58/3
abnormis ... 90/3
abœ ... = 50/62
absens ... 50/72
acamas ... 57/2
Acesina ... = 50
acestes ... 50/47
acte ... 76/1
acuta ... 45/6
adala ... 50/63
adatha ... 50/24
aditya ... 35/4
adorea ... 50/23
adriana ... 50/77
adulans ... = 50/63
ædias ... 50/8
æeta ... 50/59
ælianus ... = 31/6
æsopus ... 45/1
æstivus ... = 57/3
æta ... 65/6
agaba ... 50/33
agelastus ... 50/56
agesilaus ... 50/15
agnis ... 50/9
agrata ... 50/27
Agriades ... = 24
ahamus ... 50/76
aida ... 50/19
airavati ... 14/3
akaba ... 30/9
akasa ... 20/5
alaconia ... 50/55
alarbus ... 14/1
albida ... = 23/1
albidisca ... = 12/1
albidisca ... 20/13
albidus .. 91/2
albimacula ... 82/3
albipicta ... = 65/20
albiplaga ... 65/11
albocærulea ... 20/6
albocæruleoides. = 20/20
albopunctata ... 50/17
Albulina ... = 23
alea ... 59/32
alemon ... 50/36
alesia ... 50/50
alexis ... = 31/6
alitaeus ... 50/18
Allottinus ... 6
alocina ... = 31/5
alteratus ... = 15/2
aluta ... 30/12
amantes ... 50/40
amasa ... = 86/1
amatius ... 88/1
amatrix ... 50/40
amba ... 91/3
Amblopala ... 44
Amblypodia ... 50
ameria ... 49/1
amisena ... 51/2
amitra ... 20/17
ammonides ... 50/68
amor ... 81/1
amphea ... = 50/72
amphimuta ... 50/16
amrita ... 70/2
amyntor ... = 87/1
ananda ... 15/1
ananga ... 20/1
anarte ... 50/3
anasuja ... 67/1
ancon ... 5/6
ancus ... 88/1
ancyra ... 30/6
andamana ... 85/3
andamanica ... 30/2
andamanica ... 47/1
andamanica ... 50/81
andamanica ... 65/1
andamanicus ... 33/1
andersoni ... 1/1
andersoni ... = 47/2
androcles ... 36/5
angulata ... = 45/6
angusta ... 30/1
anita ... 47/1
anniella ... 50/75
annulata ... 23/11
anthea ... 50/2
anthelus ... 50/2
antimuta ... 50/61
antiqua ... 23/10
antura ... = 50/23
apha ... 50/25
Apharitis ... 57
Aphnæus ... = 58
apidanus ... 50/76
Apporasa ... 49
approximatus ... = 14/1
apthonius ... 6/2
arama ... 50/22
Araotes ... 93
arata ... 50/26
Archæogerydus.. = 5
arcuata ... = 45/2
arcuata ... 54/1
ardates ... = 30/14
areca ... 92/1
arene ... 24/2
areste ... 50/80
arestina ... 50/80
argentea ... 61/3
argiades ... 17/1
argiolus ... 20/20
Arhopala ... = 50
ariana ... 24/2
ariana ... 50/20
Aricia ... = 23
aricia ... 50/10
arida ... = 65/15
ariel ... 50/68
arisba ... = 50/69
aroa ... 50/30
arracana ... = 47/1
Arrhenotrix ... = 60
artegal ... 50/75
artena ... = 20/15
Artipe ... 87
arvina ... 50/12
ashretha ... 23/6
asiatica ... 23/17
asoka ... 50/78
asopia ... 50/57
assamensis ... 5/2
assamica ... 17/3
assamica ... 42/14
astorica ... 23/8
astrarche ... 23/9
atacinus ... 6/4
ataxus ... 42/4
atina ... = 31/8
atkinsoni ... 49/2
atomaria ... = 5/4
atosia ... 50/10
atrata ... 30/8

atrax ... 50/19
atroguttata ... 23/1
atymnus ... 54/1
aurelia ... 50/33
Aurotis ... = 42
avidiena ... 44/1
Azanus ... 32
azata ... = 30/8
bakeri ... 36/4
baralacha ... = 35/2
basiviridis ...= 50/44
Baspa .... = 90
baton ... 23/2
bazaloides ... 50/46
bazalus ... 50/42
belphœbe ... 50/60
bengalensis ... = 15/2
bengalensis ... = 33/1
bengalia ... = 16/3
berenice ... 30/11
bhotea ... 62/1
bhutea ... 30/13
Bidaspa ... = 90
Biduanda ... 77
bleti ... 42/2
biggsii ... 5/4
Bindahara ... 92
binghami ... = 3/5
binghami ... 20/3
biplagiata ... 51/1
birmana ... = 36/6
birmana ... 50/69
birupa .. 42/12
blairana ... 31/6
blanka ... = 61/2
bochides ... = 31/9
bochus ... 31/1
bœticus ... 29/1
boisduvali ... 5/2
boisduvali ... 78/1
boswelliana ... 46/2
Bothrinia ... 19
bothrinoides ... = 20/20
bracteata ... = 23/3
bracteatus ... = 58/1
brahma ... 36/8
brassolis ... 95/1
Britomartis ... 63
Bullis ... = 63
bulis ... 45/5
bupola ... = 50/43
burmana ... 13/1
burmana ... 60/2
buto ... 63/1
buxaria ... 90/17
cachara ... 84/2
caleta ... 14/2
callinara ... = 15/2
Callophrys ... 38
Camena ... = 61
camdeo ... 50/5
canaraica ...= 50/34
capeta ...= 50/73
cardia ... 20/18
carmentalis ... 61/6
caspius ... 35/6
cashmirensis ... 23/2
Castalius ... 14
Catapœcilma ... 83
Celastrina ... = 20
celeno ... 31/6
centaurus ... 50/37
cepheis ... 66/2
ceylanica ... 58/5
ceylonica ... 30/11
ceylonica ... 65/15
ceylonicus ... 30/2
Chœtoprocta ... 43
chalybeia ... 38/2
chamanica ... 23/5
chandala ... = 22/2
chandrana ... 91/2
Charana ... 66
chennellii ... 19/1
Cheritra ... 75
Cheritrella ... 73
Chilades ... 21
chinee ... = 31/7
chinensis ... 50/79
chitra ... = 94/1
chitralensis ... 24/1
chitralensis ... 57/2
chitralica ... 23/15
Chliaria ... 84
chola ...= 50/78
chota ... = 14/1
christophi ... 23/3
chrysomallus ... 59/1
Chrysophanus ... =35
Cigaritis ... = 57
clngalensis ... 82/1
cippus ... 65/16
cleobis ... 61/7
cleoboides ... 63/2
cleodus ... 31/5
cnejus ... 16/1
coelestina ... 20/20
cœlestis ... 30/12
cœrulea ... 31/9
colmus ... = 14/3
concanus ...= 58/12
confusa ... 91/1
comica ... 50/53
conferenda ... = 31/6
constanceæ ... 50/32
continentalis ... 6/3
continentalis ... 30/2
continentalis ... = 54/1
contracta ... 16/2
cooperi ... 50/39
Cophanta ... = 65
corinda ... 50/47
coruscans ... 31/2
coruscans ... 36/5
coruscans ... 50/37
cossæa ... 20/12
cotoides ... = 61/1
cotys ... 61/1
crameri ... = 32/4
Creon ... = 61
Creusa ... 64
croculana ... = 31/8
croton ... 5/1
ctesia ... 61/2
culta ... 64/1
cunilda ... 31/10
Cupido ... 18
Curetis ... 45
cyanescens ... 20/15
Cyaniris ... = 20
Cyaniroides ... 1/1
cyara ... 77/1
cymbia ... 34/1
cytis ... 23/7
Dacalana ... 60
dama ... = 50/21
damona ... = 90/14
dana ... 30/17
darana ... 47/1
Darasana ... = 50
dascia ... = 50/71
davisonii ... = 50/61
dawna ... 2/3
decidia ... 14/2
decreta ... 22/5
delicatum ... 83/3
deliochus ... 90/2
dentata ... 45/6
Deramas ... 4
Deudoryx ... 88
deva ... 61/4
devanica ... 24/5
dharma ... = 11/1
dharta ... = 15/1
diæus ... 65/10
diara ... 88/1
diardi ... 50/73
dieneces ... 90/14
dilecta ... 20/18
diluta ... = 22/2
dima ... = 30/14
diopeithes ... 5/5
dipora ... 17/2
diporides ... 17/1
discalis ... = 45/5
discalis ... 51/1
dispar ... 50/6
distanti ... 20/12
distorta ... 51/4
dodonæa ... 50/51
dohertyi ... 3/4
dohertyi ... 20/9
dohertyi ... 42/2
dohertyi ... = 89/1
donatana ... 65/2
doni ... 42/10
donina ... 56/1
dorimond ... = 50/76
drasula ... = 24/2
Drina ... 56
droshana ... 24/2
drucei ... = 65/11
drumila ... 6/1
Drupadia ... = 78
drunela ... 24/2

dryina ... = 22/5
dubiosa ... 30/15
dudgeoni ... 40/1
duessa ... 50/65
duma ... 42/8
dumoides ... 42/8
elegans ... 83/1
eleus ... = 35/2
elima ... 58/6
elina ... = 14/4
ella ... = 16/2
ellisi ... = 23/18
ellisi ... 50/71
ellisi ... 65/4
elna ... 14/4
elpis ... 31/7
elsiei ... 2/7
elsiei ... 50/11
eltola ... = 84/1
elwesi ... 58/10
emolus ... 33/1
Eoxylides ... 79
epargyrus ... 57/1
epicles ... 36/2
epijarbas ... 88/1
epimuta ... 50/11
epius ... 9/1
erichsonii ... = 47/1
eros ... 24/2
erycinoides ... 2/7
erylus ... 85/3
eryx ... 87/1
ethion ... 14/3
etolus ... = 58/1
etolus ... 86/1
Euaspa ... 41
Euchrysops ... 16
eumedon ... 23/10
eumolphus ... 50/43
euplea ... 30/8
eurysaces ... 31/7
eurysthenes ... 50/44
evansii ... 35/6
evansii ... 58/8
Everes ... 17
extensa ... 61/5
extensa ... 90/19
extricatus ... = 15/2
fabius ... 6/6
fabricii ... 77/4
fabronia ... 70/1
fairliei ... 58/6
farquhari ... = 50/43
flavens ... 35/2
florimel ... 51/3
Flos ... 50
francisca ... = 90/8
freja ... 75/1
Freyeria ... = 22
fugitiva ... 24/1
fulgens ... = 3/5
fulgens ... 10/1
fulgida ... 50/74
fulla ... 50/81
fulva ... 30/15
fusca ... 58/1
gabenia ... = 90/10
gabriel ... 58/2
gætulia ... 88/2
gaika ... 22/4
galathea ... 23/15
galba ... 22/6
gamra ... 32/4
ganesa ... 50/66
ganga ... = 12/1
gaura ... = 11/1
Gerydus ... 5
geta ... 2/4
ghela ... 89/3
gigantea ... 71/1
gisca ... 20/15
gloriosa ... 45/3
gopara ... = 5/4
gracilis ... 24/5
grisea ... 90/10
grotei ... 91/2
gythion ... 30/9
hades ... 90/7
halba ... 82/2
hamada ... 8/1
hamatus ... 14/2
hampsoni ... = 12/1
hampsoni ... 30/16
hapalina ... = 16/2
haraldus ... 20/1
harterti ... 3/1
Heodes ... 35
Heliophorus ... 36
hellenore ... 50/43
hellotia ... 17/1
helus ... = 50/37
hermus ... 30/3
hewitsoni ... 2/5
hewitsoni ... 50/35
hiemalis ... 74/1
himalayanus ... 58/12
himavantus ... 85/3
Hirsutina ... = 24
Horaga ... 82
Horsfieldia ... 47
horsfieldii ... 6/3
horsfieldii ... 50/44
hybrida ... = 36/8
huegeli ... 20/19
hylas ... = 23/2
hylax ... 10/2
hypargyria ... 88/2
hypargyros ... 57/2
hypoleuca ... 68/1
Hypolycæna ... 85
hypomuta ... 50/13
Hyrcanana ... = 35
hysudra ... = 90
icana ... 42/1
icarus ... 24/1
icetas ... 61/5
icetoides ... 61/6
ictis ... 58/5
idina ... = 76/1
ignara ... 50/81
Ilerda ... = 36
illurgioides ... 65/18
illurgis ... 65/17
indica ... = 22/5
indica ... 23/4
indica ... 30/15
indicus ... 35/2
indicus ... 36/2
indicus ... 50/72
Indoxylides ... = 79
indra ... 65/21
ines ... = 92/1
ingada ... = 61/4
insignis ... = 6/1
interjecta ... = 2/5
intermedia ... 42/8
intermedia ... 90/14
interruptus ... = 14/2
Iolana ... = 23
iolas ... 24/4
Iraota ... 46
iris ... 23/6
irma ... 42/2
isæus ... 65/13
ismarus ... 94/1
isocrates ... 89/1
ister ... 65/9
istroidea ... 65/4
Jacoona ... 67
jaffra ... 75/1
jakamensis ... 42/13
jalindra ... 65/21
jaloka ... 23/18
Jamides ... 31
jangala ... 65/1
jarbas ... 90/16
jasoda ... 4/1
jehana ... 65/15
jermyni ... = 23/10
jesous ... 32/4
jynteana ... 20/20
kabrua ... 42/11
kala ... 17/5
kala ... 36/7
kamorta ... = 92/1
kanara ... 48/1
kandura ... = 21/1
kankena ... 31/8
karennia ... 2/6
karennia ... 50/7
karennia ... 51/4
karsandra ... = 22/3
kasmira ... = 20/20
kasyapa ... 35/7
kerriana ... 30/1
kessuma ... 90/2
khamti ... 50/29
khasia ... 42/17
khasiana ... 13/1
khurdanus ... = 58/6
kina ... 84/2
kinkurka ... 31/6
kirbariensis ... 42/15
kodi ... 30/14
kohimensis ... 36/3

kollari ... =20/20
kondulana ... 31/7
lacteata ... 31/3
laius ... 21/1
Lampides ... 29
langii ... 36/5
lanka ... 16/3
lanka ... 20/4
lankana ... 90/5
lapithis ... 93/1
latilimbata ... = 36/2
latimargo ... =20/10
latimargo ... = 51/1
Latiorina ... = 23
lavendularis ... 20/15
lazula ... = 50/79
lazularia ... 58/12
lazulina ... 90/10
leechii ... 38/2
leela ... 23/18
lehana ... 23/16
Lehera ... = 87
letha ... 42/5
libna ... 1/1
licinius ... 69/1
lila ... 61/4
lilacea ... 20/16
lilacinus ... 57/3
limbata ... 20/17
Liphyra ... 95
lisias ... 78/1
lisides ... 72/1
Listeria ... 40
lithargyria ... 28/2
livens ... 4/1
loewii ... 23/5
Logania ... 7
lohita ... 58/12
lonegana ... 5/3
longinus ... 65/16
Loxura ... 54
luca ... 7/3
lucida ... = 61/3
luculentus ... 65/19
lunulifera ... = 58/6
Lycæna ... 23
Lycænesthes ... 33
lycænina ... 33/2
Lycænopsis ... 20
lycambes ... 33/2
lysimon ... 22/3
macarita ... 65/21
mackwoodi ... 39/2
mackwoodi ... 50/72
macropthalma... 30/2
maculata ... 65/20
maculata ... 90/18
maecenas ... = 46/1
maha ... 22/2
mahara ... = 54/1
Mahathala ... 49
major ... 8/13
Malais ... = 7
malaya ... 12/1
malayica ... 45/5
mandara ... 42/2
mandarinus ... 66/1
mandersi ... 35/3
Maneca ... 62
maneia ... 56/2
manluena ... 14/5
Manto ... 68
Mantoides ... 69
mantra ... 65/5
manychus ... 6/8
marcia ... = 34/1
marciana ... = 80/1
marginata ... 20/14
Marmessus ... 78
marmorata ... 7/2
Marshallia ... = 79
martina ... 68/1
maseas ... = 89/4
Massaga ... = 3
massalia ... 7/5
massyla ... 52/1
mavisa ... 20/5
maximus ... 58/7
maxwelli ... 504/3
medon ... = 23/9
Megisba ... 12
megistia ... 65/3
meilichius ... 31/7
melæna ... 20/11
melænoides ... 20/11
melampus ... 90/15
melastigma ... 65/8
melisa ... 77/1
mendesia ... 8/1
merguia ... 84/3
merguiana ... 30/7
metallica ... 23/13
metamuta ... 50/12
micans ... 90/19
milionia ... 41/1
milvius ... = 5/2
mindanensis ... 50/19
miniata ... 80/1
minima ... = 58/1
minturna ... = 61/3
mirabella ... 50/18
mishmia ... 61/5
moelleri ... 50/79
moolaiana ... 50/14
moorei ... 17/6
moorei ... 36/6
moorei ... 92/1
mora ... = 22/3
Mota ... 52
moulmeina ... = 82/1
multicaudata ... 48/1
multistrigatus ... 6/2
musina ... 20/7
musinoides ... 20/7
myositina ... 83/1
nabo ... 30/3
Nacaduba ... 30
Nadisepa ... = 90
nakula ... = 50/37
nara ... 15/2
narada ... 47/2
naradoides ... 47/1
Narathura ... = 50
nasaka ... 91/3
nava ... = 31/1
nazira ... = 23/9
nedymond ... 94/1
Neocheritra ... 70
Neolycaena ... 37
Neomyrina ... 74
Neopithecops ... 11
newarra ... = 50/54
ni ... 30/18
nicevillei ... 31/6
nicevillei ... 46/1
nicevillei ... = 50/22
nicevillei ... 77/2
nicevillei ... = 90/9
nicobarica ... 45/3
nicobarica ... 85/2
nicobaricus ... 30/11
nicobaricus ... 31/1
nicola ... = 16/3
nigra ... = 15/2
nigrita ... = 2/5
nila ... 16/2
nila ... = 46/1
nila ... 65/19
Nilasera ... = 50
nilgirica ... 85/1
nipalicus ... 58/8
Niphanda ... 34
nissa ... 90/18
nissoides ... 90/18
nivalis ... 6/7
noliteia ... 14/4
nora ... 30/14
noreia ... 30/16
Notarthrinus ... = 20
nubilus ... 9/1
nubilus ... 58/4
nycula ... 23/15
nyseus ... 13/1
obscurata ... = 91/3
oberthuri ... 50/55
obsoleta ... 29/1
odata ... 43/1
oenea ... 50/28
ogyges ... 65/7
omphissa ... 23/14
onxy ... 82/1
opalina ... 50/8
Ops ... = 65
orbitulus ... 23/18
oreana ... 20/19
oreoides ... 20/19
orissanus ... 58/11
ormistoni ... 50/45
orseis ... 90/10
Orthomiella ... 26
ossa ... 22/2
othona ... 84/1
otis ... 22/5
ozea ... = 31/7
pactolus ... 30/2

pagaiensis ... 50/13
palescens ... 65/14
paliasa ... = 3½/8
palilia ... = 2/5
pallidior ... 91/3
palowna ... = 51/2
Panchala ... = 50
pandava ... 16/3
panormis ... 6/6
paona ... 42/16
Paragerydus ... 6
paraganesa ... 50/67
paralea ... 50/38
paramuta ... 50/54
parrhasius ... 17/3
parrishii ... = 20/7
pasira ... 3/4
pastorella ... = 50/14
Pathalia ... = 12
patuna ... = 50/80
pavana ... 30/5
pavana ... 35/1
pavo ... 42/3
pediada ... 3/2
peguana ... 58/11
penicilligera ... 60/1
perimuta ... 50/64
perissa ... = 50/56
perse ... 89/3
persica ... = 24/1
petosiris ... 90/13
phædrus ... = 45/2
phalena ... 3/1
phalia ... 3/5
pharis ... 23/16
pharyge ... 3/3
Phengaris ... = 23
pheretes ... 23/16
pheretimus ... 90/13
phiala ... 22/6
philota ... 2/2
philatus ... 31/4
phlæas ... 35/2
phocides ... 92/1
phœnicurus ... 31/5
phrasatica ... 2/7
pila ... 17/3
pirama ... 50/37
pirithous ... 50/37
Pitheops ... 10
placida ... 20/17
plato ... = 31/1
Plebeius ... = 23
pleurata ... 2/4
plinicides ... = 34/1
plinius ... 27/1
plumbeomicans 30/11
Polyommatus ... 24
pontis ... 26/1
Poritia ... 2
poseidon ... 24/3
poseidonides ... 24/3
poseidon ... 6/4
potamini ... 17/4
potina ... = 3/5
prabha ... 54/1
pratapa ... 61
pratti ... = 91/1
principalis ... = 2/5
prominens ... 30/8
pryeri ... 50/31
pseudelpis ... 31/8
pseuderos ... 24/2
pseudojaffra ... 75/1
pseudolonginus 65/16
pura ... 31/5
Purlisa ... 71
purpura ... 31/10
puspa ... 20/15
puspargiolus ... = 20/20
putli ... 22/1
pylaon ... 23/4
querceti ... 50/52
quercetorum ... 51/1
rafflesii ... 50/21
rama ... 50/52
ramosa ... 50/52
rana ... 82/1
ranta ... = 90/18
Rapala ... 90
Rathinda ... 81
ravata ... 65/1
rectivitta ... 90/18
refulgens ... 90/4
Remelana ... = 65
regia ... 2/4
regia ... 50/24
regia ... 50/64
regia ... 75/1
rhæcus ... 90/9
rileyi ... = 17/3
rochana ... 46/2
rogersi ... = 31/8
rogersi ... 90/10
roona ... 50/58
rosacea ... 89/2
rosacea ... 90/18
rosimon ... 14/1
rovorea ... 26/1
roxana ... 14/5
roxus ... 14/5
rubi ... 38/1
rubicunda ... 90/6
rubidus ... 91/2
rufonotata ... = 36/2
rukma ... = 58/8
rukmini ... 58/9
Rumicia ... = 35
rupala ... 24/6
Ruralis ... = 42
saitua ... = 39/2
samudra ... 23/3
sangra ... = 22/5
sani ... 58/8
sanoga ... 23/5
saronis ... 45/3
sarta ... 24/6
sartoides ... 24/6
sassanides ... 39/1
Satadra ... = 50
Satsuma ... = 38
schistacea ... 58/2
schistacea ... 90/11
scintilla ... 90/12
Scolitantides ... = 23
scudderii ... 77/3
sebonga ... 65/12
sebrus ... 18/1
seliga ... 58/12
selira ... 90/19
Semanga ... 53
semiargus ... 23/11
sena ... 36/1
shandura ... 18/1
sidoma ... 30/3
sikkima ... 12/1
sikkima ... = 20/20
sikkima ... = 82/1
silhetensis ... 50/22
Siniskina ... 3
sinensis ... 37/1
singalensis ... 20/8
singapura ... 50/74
singla ... 50/40
sinhala ... 30/10
Sinthusa ... 91
Sithon ... 94
sivoka ... 30/15
skinneri ... 87/1
smilis ... 89/4
solskyi ... 35/4
Spalgis ... 9
sperthis ... 45/4
sphinx ... 90/9
Spindasis ... 58
squalida ... = 22/2
sriwa ... 7/1
Sterosis ... = 95
stigmata ... = 45/5
stimula ... = 51/3
stoliczana ... 24/2
strabo ... 28/1
Strymon ... 39
stygianus ... 35/2
Susaa ... 72
subdita ... 31/4
subfasciata ... = 7/4
subfasciata ... 50/1
subfasciata ... = 50/81
subguttata ... 90/1
subochracea ... 83/2
subpurpura ... = 90/18
substrigosa ... 6/7
subviolaceus ... 6/8
sudica ... 61/3
suffusa ... 50/4
suffusa ... 90/6
sugriva ... = 92/1
sumatræ ... 2/1
superba ... 53/1
Surendra ... 51
suroia ... 42/6
surya ... 54/1
susanus ... 35/6
sutleja ... = 24/2

syama ... 58/1
syla ... 42/14
symethus ... 5/5
symira ... =76/1
Syntarucus ... 27
tacola ... 90/18
tagore ... =50/43
Tajuria ... 65
Talicada ... 13
tamu ... 36/7
tooana ... 47/2
tara ... 90/8
Taraka ... 8
taras ... 6/5
tarpina ... 65/21
Tarucus ... 15
tavoyana ... 2/5
tavoyana ... 21/1
tovoyana ... 58/1
teesta ... =50/42
telis ... =20/15
tessellata ... 34/1
testa ... =90/6
teza ... =65/4
Thaduka ... 48
Thamala ... 80
tharis ... 79/1
Thecla ... 42
thecloides ... 85/2
theophrastus ... 15/2
theseus ... = 16/1
thesmia ... 77/4
thetis ... 45/2
thria ... 65/3
thwaitesi ... 12/1
thydia ... = 65/10
thyia ... 65/14
Ticherra ... 76
tigrinus ... = 58/1
timeus ... = 35/?
timoleon ... 46/1
Tiora ... = 23
tissama ... 31/6
todara ... =11/1
todara ... 51/4
topa ... = 30/15
tounguva ... = 50/57
transiens ... = 35/6
transpecta ... 20/10
trifurcata ... = 58/6
triloka ... = 42/14
triopus ... = 81/1
tripunctata ... 55/1
trita ... = 20/20
trochilus ... 22/1
truncipennis ... 73/1
tseng ... 35/3
Turanana ... = 23
Turania ... = 23
tyro ... = 65/13
ubaldus ... 32/1
umbriel ... =17/4
Una ... 25
uniformis ... 58/6
uranus ... 32/2
urios ... 32/3
usira ... = 56/1
usta ... 25/1
Vacciniina ... = 23
Vadebra ... = 90
vajuva ... 30/4
valentia ... 63/1
vardhana ... 20/2
varro ... 50/5
varuna ... 90/10
varunana ... = 21/1
vavasanus ... = 14/3
venosus ... 15/3
vicrama ... = 23 '2
victoria ... = 20/17
vidura ... 60/2
vihara ... 59/48
viola ... 30/7
viola ... 82/4
violacea ... = 50/52
Virachola ... 89
virgo ... 91/1
virgoides ... = 91/1
viridipunctata ... = 36/7
viridis ... = 36/5
viridissima ... = 50/43
vittata ... 42/7
vulcanus ... 58/1
walli ... 23/18
watsoni ... 50/66
watsoni ... 84/3
watsoniana ... 7/4
wimberleyi ... 50/50
woodii ... 50/49
xenophon ... =90/14
Yasoda ... 55
yajna ... 65/4
yendava ... 50/9
younghusbandi... 23/12
zaffra ... = 58/8
zalmora ... 11/1
zambra ... = 50/23
zanella ... = 4/1
zariaspa ... 35/7
Zarona ... = 4
zebrinus ... = 58/12
Zeltus ... 86
zena ... = 32/1
zephyretta ... 50/67
Zephyrus ... = 42
Zesius ... 59
zeta ... 50/58
ziha ... 42/18
Zinaspa ... = 51
Zizeeria ... = 22
Zizera ... 22
Zizina ... = 22
Zizula ... = 22
zoa ... 42/9
zoilus ... 58/12
zulla ... 42/4


## INDEX—HESPERIIDÆ—I


Abaratha ... = 32
abax ... 47/3
abima ... 97/2
aborica ... 18/2
Abraximorpha ... 21
abstrusus ... 23/1
acakra ... 1/13
Acerbas ... 90
Achalarus ... 18
acroleuca ... 76/1
actaeon ... 111/1
Actinor ... 102
adamsi ... 13/2
adamsoni ... = 114/1
adenensis ... 34/4
adhara ... 5/1
aditta ... 16/21
aditus ... 62/3
Adopaea ... = 111
adorabilis ... = 88/3
adrastus ... 82/1
aegina ... 2/3
aenesius ... 17
Aeromachus ... 58
affinis ... 16/25
affinis ... 19/2
agama ... 32/2
agna ... = 115/6
agni ... 25/4
agnioides ... 25/5
agraulia ... =105/8
ahastina ... = 106/7
ahrendti ... = 106/8
ahrimani ... = 117/1
aina ... 99/6
aitchisoni ... = 98/3
akar ... = 104/2
akshita ... 1/14
alara ... = 103/1
albescens ... 62/4
albicilia ... 26/3
albiclavata ... 115/31
albicornis ... 95/3
albifascia ... = 82/3
albimedia ... 90/3
albinus ... = 65/1
albipectus ... 99/5
albistriga ... = 34/19
albivittata ... = 99/7
albofasciata ... 33/1
albovittata ... 20/2
alceae ... 35/4
alcides ... 117/1
alexandra ... 76/1

alexis ... 1/12
alfurus ... = 104/2
alica ... 20/4
alice = 115/17
alida ... 32/1
aliena ... 88/1
aliena ... 105/8
alinkara ... = 74/4
alix ... = 105/8
Allora ... 4
almea ... 1/13
alpina ... 34/12
altheae ... 35/1
alveoides ... 34/16
alveus ... 34/15
alysia ... 74/3
alysos ... 74/4
amalia ... 115/24
amara ... 2/12
ambareesa ... 16/1
ambasa ... = 1/12
amboiensis ... 1/13
amenophis ... 34/3
amurensis = 34/20
amurensis = 109/2
anadi ... 2/7
anatolica ... 109/2
ancilla ... 108/1
Ancistroides ... 72
andamana ... 84/2
andamanica ... 16/25
andamanica ... 24/3
andamanica ... 77/1
andromedæ ... 34/12
androsthenes ... = 108/3
angulata ... 31/1
angulifera ... 97/2
angustata ... 106/7
angustipennis ... = 16/14
anisodesma ... 108/1
anisomorpha ... 105/8
Anisynta ... 39
anitta ... = 93/1
anoma ... = 16/24
antalcidas ... 105/7
anthea ... 90/1
antigone ... 2/2
antonia ... 34/7
anura ... 1/3
apara ... 1/10
apostata = 115/28
Apostictopterus 53
aquilina ... 2/2
ara ... = 99/17
archias ... 105/7
ardonia ... 105/3
area ... 16/19
argeus ... = 108/1
argyrostigma ... 47/5
aria ... 80/1
arisana ... 57/4
armata ... 71/2
armoricanus ... 34/15
Arnetta ... 60
Arrhenes ... 107
aruana ... 108/2
Arunena ... 66
asambha ... 2/9
asanga ... = 74/3
asawa ... = 82/3
asmara ... 16/21
aspersa ... 16/8
assamensis ... 115/17
assur ... = 80/5
Astictopterus ... 54
astigmata ... 99/15
astigmata .. 111/7
atala ... = 87/8
ataphus ... 2/3
atarana ... 25/1
athene ... 2/3
athos ... 20/4
atilia ... 28/2
atkinsoni ... 60/2
atrinotata ... 2/2
atropatene ... 113
atropunctata ... 105/4
atrox ... 1/12
attenuata ... 1/12
attenuata ... 1/13
atticus 20/1 and = 20/9
attina ... 93/1
Aubertia ... = 47
aucma ... 99/34
Augiades ... 109
augias ... 108/1
augustula ... = 104/3
aurantiaca ... 87/5
auriferus ... 99/35
aurivittata ... 16/26
aurociliata ... 115/11
austeni ... 115/10
australior ... = 35/3
autoleon ... 108/2
avajra ... = 1/3
avala ... = 20/3
avanti ... 47/5
avattana ... 74/4
avesta ... 88/5
avidha ... 66/2
ayankara ... = 92/1
ayata ... 16/21
azona ... 114/3
bada ... 115/28
Badamia .. 6
badia ... 16/22
badra ... 1/6
baileyi ... 99/12
balana ... = 20/1
balarama ... = 115/6
balukinus ... 16/24
bambusæ ... 108/2
Baoris ... 115
Baracus ... 56
Barca ... 52
barea ... = 114/1
barroni ... = 11/2
basiflava ... 82/2
batara ... = 93/8
batchiana ... 108/3
batchianus ... 16/28
Battus ... = 34
bavius ... 105/7
baweana ... = 108/4
bazilana ... = 99/26
bazilanus ... = 23/1
beata ... 8
belesis ... 2/3
benjaminii ... 5/1
beraka ... 115/18
beturia ... 99/39
beturina ... = 99/26
bevani ... 115/31
bhagava ... 24/3
bharara ... 1/13
bhawani ... 94/3
Biaka ... = 95
Bibasis ... 3
Bibla ... = 104
bicolor ... 22/1
bicolor ... 52
bicolor ... 85/2
bieti ... 34/17
bifasciata ... 18/2
bilunata ... 1/12
binghami ... = 83/1
binotatus ... 16/14
binotatus ... 85/2
bipunctata ... = 86/6
bipunctata ... 115/25
bipunctus ... 62/3
birmana ... 24/1
biseriata ... = 83/1
bivitta ... 99/7
blanchardi ... 99/11
bœticus ... 35/2
boisduvali ... 1/9
boisduvali ... 23/1
bononia ... 86/7
bononoides ... 59/3
borneensis ... 1/7
bouddha ... 109/6
bowringi ... 24/7
brahma ... 109/8
brahmaputra ... 16/13
bromus ... 115/10
brontes ... = 47/1
brunnea ... = 99/34
brunnea ... 115/3
bubasus ... = 20/3
buchanani ... = 25/3
Burara ... = 2
burgeri ... 1/14
burmana ... 87/2
burmana ... 99/25
butleri ... 1/13
butleri ... 66/8
cacaliæ ... 34/12
cacus ... 16/21
cænis ... = 99/9
cahira ... 115/10
cakka ... 106/3
calathus ... 88/1
Calliana ... 13
calligana ... 20/11

callineura ... 87/2
Caltoris ... = 115
cameroni ... 16/26
camertes ... = 57/1
canostigma ... 1/12
canaraica ... 115/29
Capila ... 11
Caprona ... 32
Carcharodus ... 35
carlinæ ... 34/15
carna ... 115/10
Carterocephalus ... 47
carthami ... 34/13
cashmirensis ... 34/12
Casyapa ... 9
casyapa ... 16/2
cataleucos ... 65/1
catacyanea ... 58/1
celaeno ... = 105/8
Celænorrhinus ... 16
celænus ... 1/14
celebensis ... = 74/4
celebica ... = 1/6
celebica ... 24/6
celebica ... 25/2
celsina ... 80/5
cellundo ... 67/1
centaureæ ... 34/12
cephala ... 64/1
cephaloides ... 64/3
Cephrenes ... = 108
ceramas ... 105/4
ceramica ... = 115/6
cerata ... 99/16
certhia ... 1/11
cervantes ... = 36/2
ceylonica ... 99/33
chabrona ... = 1/8
Chætocneme ... = 9
chalybeata ... 1/10
chamunda ... 21/2
Chapra ... = 115
chariyawa ... 106/5
Charmion ... 15
chaya ... = 115/6
chilon ... = 62/4
chimæra ... = 74/4
chimdroa ... 115/12
chinensis ... 16/13
chinensis ... 30/1
chinensis ... = 54/1
chinensis ... 58/2
Choaspes ... = 5
christophi ... 47/9
chromus ... = 1/12
chrysæglia ... = 2/2
chrysomelæna ... 22/2
chrysozona ... 108/4
chunda ... = 74/3
chuza ... = 1/14
cicatrosa ... = 86/2
cicero ... = 73/1
ciliata ... = 83/2
ciliatus ... = 90/1
acinaræ ... 34/14
cingala = 115/30
cinnamonea ... = 86/5
cinnara = 115/28
cirta ... 1/11
clarus ... = 36/2
clavata ... 74/3
clio ... 16/28
clitus ... = 16/8
clothilda ... 75/1
cœre = 115/3
cœrulescens ... 115/27
cognata ... = 19/2
cohærens ... = 20/9
colaca ... 115/30
Coladenia ... 25
colon ... = 108/1
comma ... 110/1
comoplœa ... = 82/4
compactã ... 64
concertus ... 16/21
concinna ... = 86/3
concinna ... 104/1
confucius ... 106/7
coniata ... 64/4
conjuncta ... 115/18
connasa = 115/13
consanguinea ... 16/2
consobrina ... 2/3
consors ... = 109/6
contempta ... 1/12
contigua ... 115/23
contigualis ... 115/25
contractus ... = 18/2
conyzeae ... 34/12
coras ... = 105/4
corissa ... 87/11
cormasa ... 115/13
corona ... 24/5
Corone ... = 108
Corythæalos ... = 66
cosima ... 19/2
coulteri ... 1/9
cratæis ... 109/9
crawfurdi ... 5/1
Creteus ... 96
cretura ... 115/31
cribrellum ... 34/6
cridatta ... = 1/14
crinatha ... 2/9
crona ... 16/28
cronus ... 86/1
Crossiura ... 12
cruda ... = 93/1
Ctenoptilum ... 30
cuneiformis ... 22/2
Cupitha ... 103
curiosa ... = 53/1
Cyclopides ... =
cyrina ... 96/1
dændali ... = 115/30
Daimio ... 24
dalailama ... 57/5
dampierensis ... 1/14
dan ... 25/2
danæ ... = 32/2
danna ... 105/1
dara ... 106/7
Darpa ... 27
darwazica ... = 34/12
dasahara ... 26/3
davidii ... 21/1
davidsoni ... 26/3
dawna ... 86/4
dawna ... 97/2
dea ... 25/2
dealbata ... = 27/3
debilis ... 99/12
decorata ... 99/21
decoratus ... 22/1
Dejeania ... = 52
delavayi ... = 34/18
demea ... = 47/6
demea-plutus ... 47/9
denitza ... 8
dentatus ... 16/25
devadatta ... 74/3
dhamika ... 106/3
dhanada ... 16/25
dharana ... = 74/4
dhyana ... 25/2
dichroa ... = 25/2
dieckmanni ... 47/6
dilutior ... 106/7
dimidiata ... = 27/2
dimila ... 110/1
diocles ... = 71/1
dioscorides ... 57/1
dipama ... 1/13
dipavansa ... 106/3
diræ ... 24/5
discolor ... 1/8
discreta ... 58/3
discreta ... 115/20
Dispar ... 46
dissimilis ... = 82/4
distans ... 20/4
distanti ... 2/9
distanti ... 95/2
distictus ... 115/30
diversa ... = 24/4
divodasa ... = 62/1
dœscœna ... 94/4
dohertyi ... 19/2
doleschalli ... 4
dolon ... 105/8
dolopia ... 101/1
dombya ... = 71/3
drancus ... = 87/11
dravida ... = 115/13
dravira ... 35/1
druna ... 80/3
drymo ... = 81/1
dschaka ... = 105/8
dschalia ... = 135/8
dubius ... 58/4
dulcis ... 47/6
durga ... 84/1
duris ... 90/2
dushta ... = 106/8
eacus ... 25/2

eburus ... =92/1
editus ... 16/28
Eetion ... 92
egena ... 99/34
elegans ... 20/3
elia ... 92/1
ella ... = 115/6
elma ... 33/1
elongata ... = 20/3
eltola ... 115/19
elwesi ... = 32/2
Elwesia ... 51
Entheus ... = 22
Eogenes ... 117
epicharmus ... = 20/1
epitalas ... = 24/4
erebus ... = 36/3
ericus ... = 6/1
Erionota ... 76
ermasia ... 21/1
erosula ... 32/1
Erynnis ... = 34
eson ... = 20/9
etelka ... 2/3
eulepis ... = 87/10
euria ... = 106/2
Euschemon ... 14
evaira ... = 71/1
evanidus ... 34/4
evershedi ... 99/20
everyx ... 62/4
excellens ... = 2/6
excellens ... = 88/3
exclamationis ... 6/1
Exometœca ... 7
expansa ... 24/2
extrusus ... 87/12
fabriolata ... = 104/2
farri ... 115/1
fasciata ... 99/29
fatih ... 25/2
feisthamelii ... 74/4
felderi ... 24/1
fenestrata ... 1/11
fenestrata ... 86/3
feralia ... 86/2
fergusoni ... 2/5
fettingi ... 106/2
ficulnea ... 15/1
firdusi ... = 2/2
fitjiensis ... 104/3
flaccus ... 105/2
flava ... 99/36
flava ... 106/8
flava ... 115/4
flavalum ... = 24/8
flavescens ... 87/8
flavia ... 87/4
flavipennis ... = 84/2
flavocincta ... 1b/9
flavoguttata ... = 106/6
flavoides ... 105/5
flavomaculata ... 47/7
flavostigma ... 47/9
flexilis ... = 115/29
florinda ... 110/1
focula ... 66/3
folus ... 73/1
forensis ... = 67/1
formosa ... = 24/5
formosana ... 2/2
formosana ... 5/1
formosana ... 19/5
formosana ... 24/1
formosana ... 57/4
formosana ... 108/2
formosanus ... 16/16
fortunei ... = 115/28
forulus ... = 6/1
foulquieri ... 34/15
frater ... = 18/3
freija ... 34/12
froenati ... = 14
fruhstorferi ... 87/4
fucata ... = 34/10
fulgidus ... = 115/24
fulgur ... 71/5
fuliginosus ... 5/1
fuligo ... = 54/1
fulvescens ... 25/2
fulvomargo ... 104/3
fumatus ... = 71/1
fumosa ... = 24/5
fusca ... = 16/19
fusca ... = 99/9
fuscicornis ... = 87/6
fuscula ... 67/1
galaca ... 1/13
galba ... 34/1
gana ... 20/3
ganapata ... 1/12
ganda ... = 106/7
Gangara ... 75
gavina ... = 20/8
Ge ... 69
Gecana ... = 2
Gegenes ... 116
Gehenna ... 87
gemmatus ... = 47/6
gemmifer ... 71/3
gener ... = 18/1
gentiana ... 1/14
germanus ... 18/5
geron ... 34/3
Gerosis ... = 32
geta ... 69/1
gigantea ... 34/7
glandulosa ... 77/1
glauca ... = 98/3
gnaeus ... = 1/6
godama ... = 1/6
godhania ... 105/7
gola ... 104/2
goloides ... = 104/2
Gomalia ... 33
gomata ... 2/13
gopaka ... 66/4
gopala ... 19/1
goto ... 16/21
grahami ... 99/2
grandis ... 76/1
grandis ... = 104/2
graya ... = 24/5
grew ... 97/1
gremius ... 62/1
gupta ... 99/9
guttatus ... 115/28
guttulifera ... = 86/5
habroa ... 1/8
hadria ... = 1/3
haga ... = 115/28
hainana ... 11/3
hainana ... = 115/30
Halpe ... 99
hamiltoni ... = 32/1
hampsoni ... 26/3
hampsoni ... 28/1
hampsoni ... 56/2
hanra ... 27/1
Hantana ... = 16
haraka ... 66/2
harisa ... 2/9
harmachis ... 93/2
hasdrubal ... 76/1
haslia ... 1/9
Hasora ... 1
hasoroides ... = 113
hazis ... = 99/35
hector ... = 66/1
helena ... 87/4
helferi ... 20/1
helias ... 31/1
helisa ... = 31/1
helias ... = 31/2
hemixanthus ... 2/13
henrici ... 54/1
hercules ... = 108/3
hercules ... = 109/2
Hesperia ... 34
Hesperilla ... 42
heterus ... 106/5
heterobathra ... 106/3
Heteropterus ... 49
Hewitsonia ... 17
Hidari ... 94
hieroglyphica ... 22/2
hieron ... 99/32
himalaya ... 115/20
hiraca ... = 76/1
homolea ... 99/33
honorei ... 99/22
hopkinsi ... 26/1
horishama ... 99/17
houangty ... 47/2
hurama ... 1/14
Hyarotis ... 82
hybrida ... = 34/6
hyela ... 95/1
hypecides ... = 31/1
hyperides ... = 31/1
hypoleucus ... = 34/11
hypœpa ... = 94/2
hyrax ... 111/3
hyrcana ... 109/2
hyrie ... 99/18

hyrmina ... = 80/5
hyrtacus ... 99/4
iadera ... 83/2
Iambrix ... 61
iapis ... = 85/1
Idmon ... = 61
idyalis ... = 86/7
igna ... = 25/2
ikramana ... 105/6
ilion ... 63/1
Ilma ... 70
iluensis ... 5/1
iluska ... 2/2
impar ... 115/31
imperialis ... 2/9
inachus ... 58/2
inæqualis ... 16/27
inarime ... 86/2
indica ... 24/4
indistincta ... = 58/5
indistincta ... = 86/?
indra ... 25/1
indrani ... 25/1
indrasana ... = 87/11
inermis ... 1/12
Inessa ... 63
infernus ... = 16/18
inornata ... = 82/3
insignis ... 99/24
insularis 12/1
insularis ... 108/3
intermedia ..=115/28
intricatus ... = 55/1
ionis ... 2/2
irava ... 94/2
irvina ... = 70
Isma ... 85
Ismene ... 2
ismene ... 95/2
isota ... = 64/1
Isoteinon ... 50
Iton ... 114
Itys ... 83
jaina ... 2/5
jainas ... = 20/3
jama ... 54/1
jankowskii ... 2/2
jansonis ... 115/26
japetus ... 20/5
japonic ... 5/1
japonica ...= 106/8
javana ...=115/18
javanensis ... 19/2
javanica ... = 31/2
javanicus .. 58/3
javanites ... 66/4
jayadeva ... 11/4
jetavana ... = 20/4
jetavana ... 115/10
jhora ... 58/4
jolanda .. 115/16
joloana ... = 99/26
juliana ... = 115/6
kada ... = 54/1
kala ... 60/3
kali ... 58/1
kanara ... 2/13
kanara ... 87/7
karea ... = 20/3
karsana ... = 116/1
kayapu ... = 108/4
kerala ... 66/4
Kerana ... 71
kethra ... 67/1
khasiana ... 20/1
khasianus ... = 60/2
khoda ... 1/12
kiku ... ... 16/28
kirmana ... =19/2
kisaga ... 105/7
kiyila ... 12/1
klossii ... 74/4
knyvetti ... 99/30
kobros ... 106/3
kolantus ...=115/28
kophene ... =66/3
Koruthaialos ... 66
kowaia ... 20/3
kreffti ... 108/1
kreon ... =108/3
kuki ... 31/1
kumara ... 99/28
kumara ... 115/14
kusala ... 99/34
ladana ... 16/28
ladon ... = 6/1
lænas ... 87/5
lætitia ... = 66/4
lalita ... 2/13
lalita ... 10/2
lamprospilus ... 50
lanka ... 1/6
lanka ... 115/14
lankæ ... = 25/1
lara ... 2/13
lara ... = 76/1
laraca ... 115/18
larika ... 115/15
latifascia ... 1/8
latifascia ... 16/23
latifascia ... 61/6
lativittus ...= 16/25
lato ... 110/1
latoia ... 87/3
latonia ... = 87/11
latreillei ... = 93/1
latris .. 99/14
lavata ... 20/2
lavatharæ ... 35/3
laxmi ... 25/3
lebadea ... 77/1
leechii ... 115/1
lefebvrei ... = 116/1
leonina ... 111/6
Leptalina ... 48
leptogramma ... 31/2
lesliei ... 52/1
leucocera ... 16/13
leucocirca ... = 16/13
leucographa ... = 15/1
leucospila ... 1/10
liburnia ... 87/5
lidderdali ... 10/1
liliana ... 18/2
limax ... 24/5
lineata ... 24/1
lineata ... = 105/2
lineola ... 111/4
lioneli ... 1/11
litigiosa ... 20/9
litoralis ... = 33/1
lizetta ... 1/3
Lobocla ... = 18
locus ... = 104/2
lombokiana ... 25/2
longicornis ... 72
Lophoides ... = 85
lorquini ... = 2/12
Lotongus ... 88
lucasi .. 99/19
lucescens ... 1/12
lucifera ... = 16/5
lugens ... = 20/1
lugens ... 34/5
lugubris ... 1/14
lusca ... 2/9
luteipalpus ... 61/2
luteisquama ... = 99/37
lutulentus ... = 34/10
luzonensis ... = 64/4
luzonensis ... = 105/6
lycorias ... = 103/1
lyde ... = 5/75
lyelli ... 115/6
lysima ... 2/9
mabillei ... = 90/3
mabillei ... 93/1
Machacus ... = 58
mackwoodi ... 11/2
macleayi ... 108/2
maculatus ... 34/20
maculatus ... = 88/2
maculicornis ... 16/16
maculicornis ... 87/7
maculosa ... 16/7
madatta ... = 1/6
mæniata ... = 25/6
mæsa ... = 106/7
mæsoides ... 106/6
mævius ... 105/2
maga ... 57/4
magniplaga ... = 92/1
mahabini ... = 31/1
mahala ... 16/28
mahapara ... 99/27
mahinda ... = 20/4
mahintha ... 2/1
majasra ... 19/1
major ... 34/16
majuscula ... 99/39
majuscula ... 109/2
malaya ... 115/14
malayana ... 1/13
malvæ ... 34/11
malvoides ... 34/11

mangala ...=115/28
mangolina ... = 87/10
margana ... 2/5
margherita ... 87/3
marloyi ... 36/3
maro ... = 57/1
maroides ... 57/3
marrubii ... = 35/2
marsena ... 98/3
marta ... = 99/34
martini ... = 64/2
martini ... 90/2
masoni ... 99/23
mastusia ... 1/8
masuriensis ... 59/1
matanga ... = 86/6
Matapa ... 80
Matapoides ... 79
mathias ... = 115/6
matinus ... = 108/3
matisca ... 1/10
maura ... = 71/1
meala ... 1/13
meetana ... 20/4
mehavagga .. 115/15
meiktila ... 101/1
melania ... = 54/1
melanion ... = 104/3
meleagrina ... = 96/1
melli ... 10/1
melotis ... 34/11
meluchus ... 82/1
menaka ... 20/8
menanto ... 20/3
mencia ... 115/7
mesodina ... 37
mettasuta ... = 32/1
micado ... = 110/1
micio ... 47/9
microstictum ... 83/1
microthyrus ... 81/1
midea ... 115/6
migreus ... = 62/4
Milena ... = 115
milinda ... 16/21
milliana ... = 24/3
Mimambrix ... = 61
Mimas ... = 113
Mimena ... 113
mindanaensis ... 82/1
mindorana ... 2/13
minima ... = 24/5
minimus ... = 105/8
minsona ... 1/9
minuscula ... 28/1
minuta ... 62/2
minuta ... 115/21
miosticta ... 86/5
mixta ... 1/11
mixta ... 110/1
modesta ... = 60/1
mœlleri ... = 65/1
mœstissima ... 1/9
moncada ... 2/9
monilis .. = 115/6
montana ... 47/5
montanus ... 36/1
monteithii ... 82/4
moolata ...=115/13
Mooreana ... 23
moorei ... 99/26
moorei ... 115/14
moori ... 24/1
mormo ... = 115/2
morpheus ... 49
Motasingha ... 45
multiguttata ... 30/2
multipunctatus 20/9
munda ... 16/15
murdava ... 98/2
mus ... 1/1
musca ... 58/5
Muschampia ... = 34
myakei .. 57/4
myconius ... = 105/8
myra ... 1/2
mytheca ... 91/1
mythecoides ... = 88/2
naga ... 87/9
nala ... = 106/7
namata ... = 66/1
nana ... = 20/6
nanus ... 57/5
narada ... 24/4
naranata ... = 104/2
narooa ... 115/18
nascens ... 115/8
natuna ... = 87/4
neæra ... 81/1
negrosiana ... = 108/4
Neohesperilla ... 44
neophytes ... = 115/1
nephele ... 99/38
nepos ... 18/4
nervulata ... 111/7
nestor ... 2/2
nestus ... 20/11
Netrocoryne ... 29
niasana ... 2/9
niasana ... 20/3
niasana ... 71/2
niasana ... 74/2
niasana ... = 87/4
niasica ... 15/1
niasica ... = 95/2
niasica ... = 115/6
niasicus ... 66/2
nibana ... 15/1
Nicevillea ... 104
nicevillei ... 105/4
nigerrima ... 66/5
nigrescens ... 36/1
nigricans ... 16/24
nigrita ... 71/1
nigroguttatus ... = 62/1
nigrolimbata ... 105/7
nikaja ... = 106/8
nilgiriana ... = 60/1
nipata ... = 104/2
niphates ... = 19/2
nirwana ... 115/10
Nisoniades ... 36
nitida ... 106/9
nitidifasciata ... 90/3
niva ... = 23/1
niveomaculatus. 47/8
nivescens ... = 24/6
nivosa ... = 23/1
nobilis ... = 34/10
noctis ... 20/1
noctis ... = 82/4
noemi ... 87/8
nomas ... =34/8
nondao ...=115/28
nostrodamus ... 116/1
Notocrypta ... 7/4
nubilus ... = 54/1
nycteris ... 7
nymphalis ... 19/1
oberthuri ... 34/18
oberthuri ... 105/4
obliquans ... = 61/5
obscura ... = 85/1
obscurus ... 20/4
obsoleta ... = 58/5
oceia ... 115/1
ochracea ... 109/1
Ochus ... 55
Ocybadistes ... = 106
Odina ... 22
Odontoptilum ... 31
œdipodea ... 2/3
œdipus ... 2/4
œrane ... 81
ogasawarensis ...=115/30
ogygia ... 84/2
ogygioides ... = 84/2
olivascens ... 54/1
olivescens ... = 108/1
omeia ... 11/1
onara ... 88/3
onchisa ...=115/10
onopordi ... 34/13
Onryza ... 100
ops ... = 47/4
optimus ... 89/1
orbifera ... 34/5
orbiferus ... 16/24
Oreisplanus ... 40
orfitus ... 106/2
orientalis ... 35/1
ormenes ... 99/27
ornata ... = 98/3
ornatus ... 5/1
Orthopætus ... 10
ortygia ... 22/2
othonias ... = 77
ottala ... 106/6
ottalina ... 106/6
ovalis ... = 15/1
Oxytoxia ... = 43
ozias ... 94/1
paceka ... = 20/3
paceka ... 106/3
padhana ... = 74/4

padhana ... = 108/3
padma ... 1/13
padraona ... 106
paduka ... 77
pagana ... 115/9
pahanga ... 1/1
palæmon ... 47/1
palajava ... 16/21
palawana ... 3/1
palawana ... = 28/2
palawana ... = 93/1
palawanica ... 115/31
palawata ... = 87/10
palawea ... 99/31
palawensis ... 82/1
palawites ... = 66/4
palemonides ... = 57/1
palinda ... 1/9
palmarum ... 108/4
palnia ... 106/8
pamphila ... 110
pandia ... = 75/1
pandita ... 59/2
paniscus ... = 47/1
papyria ... 105/8
paradoxus ... 23/1
paragola ... = 104/3
paralysos ... 74/3
parata ... = 1
parca ... 96/1
parnaca ... 59/2
Parnara ... = 115
parnia ... 1/10
parva ... = 20/3
parthenope ... = 88/2
parvopunctata ... = 32/2
patmapana ... = 87/11
pathana ... 1/9
patimoka ... = 20/4
patula ... 16/10
pava ... = 106/7
pavona ... = 95/2
pavor ... = 106/2
Pedestes ... 59
pelethronix ... 99/35
pelias ... = 32/2
pelias ... 36/3
Pelion ... = 111
pelligera ... = 32/1
pellita ... = 23/1
pellonia ... = 87/10
pellucida ... 115/22
penicillata ... 115/1
pennicillatum ... 12/1
perakana ... = 20/4
perakana ... 87/2
perara ... = 99/34
perbella ... = 95/14
perfossa ... = 99/28
perfusca ... = 82/4
permagnus ... = 54/1
permena ... = 24/6
pero ... 16/4
perplexa ... 1/14
phanæus ... 10/3
Phænicops ... 8
phellus ... 106/4
phiditia ... 64/2
philænus ... = 106/8
philetas ... 1/11
philino ... = 115/28
philippensis ... 75/1
philippina ... 115/15
Philoodus ... = 116
philotas ... = 115/28
phisara ... 24/2
phlomidis ... 34/3
phœnicis ... = 82/1
phœnix ... 111/1
pholus ... 78/1
phul ... 2/6
piceus ... 68/3
piepersi ... = 16/19
pieridoides ... 13/1
pila ... = 16/5
pindapatra ... = 2/12
pinwilli ... 24/7
Pirdana ... 95
Pisola ... = 11
Pithauria ... 98
Pithauriopsis ... = 98
plagifera ... 16/12
plana ... 62/4
Plastingia ... 87
plateni ... 5/1
plebeia ... 115/2
Pleisoneura ... = 74
pleisonuræ ... = 15/1
plumbeola ... 56/2
plurimacula ... 34/9
pluscula ... = 16/12
poggei ... 34/10
Pola ... = 2
Polytremis ... = 115
popoviana ... = 36/2
postfasciata ... 1/9
postnigra ... = 47/7
potiphera ... = 32/1
Powellia ... = 34
praba ... 82/1
prabha ... 1/10
prabha ... = 71/1
pralaya ... 23/1
pramidha ... 1/13
pria ... 82/3
princeps ... 23/1
procles ... 106/3
promissens ... = 115/5
propinquans ... = 58/2
proto ... 34/9
protoclea ... 85/1
proximata ... 1/8
proximus ... 18/3
proxissima ... 1/5
prusias ... 108/3
pseudolus ... = 104/2
pseudomæsa ... 106/7
pteria ... 27/3
Pteroxys ... 10
Pudicitia ... 76
pugnans ... 87/12
pulchra ... 47/4
pulla ... = 80/1
pulligo ... 67/1
pulomaya ... 16/5
pumilio ... = 116/1
purendra ... 26/2
purpura ... 106/1
purpurascens ... 80/2
purpurascens ... 85/2
purpurea ... 2/9
purreea ... 103/1
pusilla ... = 81/1
pussa ... 11/4
Putlasingha ... = 38
putra ... 18/13
pygela ... 31/2
pygmæus ... 58/5
Pyrgus ... = 34
pyrrha ... 16/3
pythias ... 108/2
quadrata ... 74/1
quadripunctata. 1/6
quadripunctata. = 54/1
queda ... = 15/1
Quedara ... = 82
quinigera ... = 115/28
quinquepuncta 88/5
quinquepuncta. = 115/22
quinta ... 105/7
ractaya ... = 80/5
radians ... 102/1
radiosa ... 2/13
rafflesia ... 14
ragupta ... = 31/2
rahita ... = 2/11
rahula ... 108/2
rajaghra ... 20/1
rajagriha ... 104/2
raktaja ... = 108/4
rama ... 62/3
ransonnettii ... 32/1
rasana ... 108/2
ratna ... 16/2
ravi ... = 20/1
ravina ... = 20/1
rectifasciata ... = 74/4
rectifasciata ... 106/3
rectivitta ... 105/8
restricta ... = 74/5
renardi ... 74/5
renidens ... 5/1
repanda ... 29
repetita ... 115/31
repugnans ... = 110/1
Rhopalocampta. 5
ribbei ... 1/10
rikuchina ... 109/1
robusta ... 115/10
robsonii ... = 62/1
rubecula ... 66/1
rubrocincta ... 2/2
rudha ... 104/3
rudolphii ... = 95/1
ruficornis ... 16/19

teliga ... = 99/26
tenebricosa ... 108/3
tenebrosa ... 24/2
terranea ... 106/3
tessellata ... 87/10
tessellum ... 34/8
tethys ... 24/1
Thanaos ... = 36
thandaunga ... 99/13
thaumas ... 111/2
thibetana ... 109/5
thibetanus ... 34/20
thibetanus ... 47/8
Thoressa ... = 99
thrax ... 76/1
thrax ... = 94/2
thrax ... = 115/6
thridas ... 1/10
thwaitesi ... 28/1
thymbron ... 6/1
Thymele ... = 36
Thymelicus ... 111
thyone ... 115/31
thyrsis ... 75/1
tiacellia ... 95/3
tibetanus ... 16/23
tissa ... 25/1
tissara ... 105/6
toba ... 20/6
tola ... 15/1
tolo ... = 2/6
tonkiniana ... 19/1
tonkinianus ... = 54/1
toona =115/23
toradja ... 77/1
Torthrix ... = 2
Toxidia ... 43
trachala ... 106/10
tranquilla ... 106/3
translucida ... 11/2
Trapezites ... 35
traviata ... = 88/8
trichoneura ... 23/1
trichoneuroides 23/1
trimacula ... 57/3
trimaculatus ... 16/20
triplex ... 65/1
tripura ... = 62/4
trishna ...=104/2
tropica ... 106/8
tubulus ... = 20/7
tuckeri ... 2/3
tulsi ... 115/16
turica ... 105/7
tympanifera ... = 103/1
tyrius ... 1/11
tytleri ... 16/6
tytleri ... 61/1
tytleri ... 87/11
Udaspes ... 73
udraka ... 105/7
ulunda ... = 67/1
uma ... = 98/3
umbrina ... 1/8
umbrosa ... = 86/2
unicolor ... = 36/2
unicolor ... 48
unicolor ... = 54/1
unicolor ... 61/4
unicolor ... 115/1
unicolor ... 115/36
uniformis ... 3/1
Unkana ... 93
upadhana ... 108/2
uposathra ... 25/1
Urbanus ... = 34
Urbicola ... = 110
urejus = 115/33
utanus ... = 20/1
vaicravana ... 3/1
vaijrada ... 71/4
vaika = 115/31
vairacana ... 1/12
vajra ... 2/13
vajuna ... 20/9
valenia ... = 27/2
varia ... 99/10
varians ... = 74/4
vasava ... 30/1
vasuba ... = 61/2
vasuba ... = 71/1
vasundhara ... 2/5
vasutana ... 2/11
veluvana ... 99/33
venata ... 109/2
vermiculata ... 87/1
verruca ... =103/2
verones .. 60/4
viburnia ... 87/8
vilasina ... 99/27
vimana ... 16/26
vindhiana ... 61/1
violacea ... 1/10
virgata ... 57/2
visana ... = 24/5
vistara ... 99/27
vitrea ... 25/7
vitruvius ... 16/16
vitta ... 1/8
vittatus ... 56/1
vivapama ... 1/14
volux ... 74/2
vulso ... 85/2
vulturna ... = 20/8
walkeri ... 106/3
wamba ... 104/3
wantona ... =99/34
waterstradti ... 20/7
Watsonia ... = 68
Watsoniella ... 68
watsonii ... 114/2
woolletti ... = 1/4
woolletti ... 61/1
wortha ... = 1/3
xanites ... 66/4
xanthropogon ... = 5/1
yamanta ... = 61/5
yanuca ... 115/13
yanuna ... = 1/11
yapatha ... = 20/11
yasodara .. 75/1
yaya ... = 74/3
yojana ... =106/7
yotissa ... = 20/1
zalates ... = 88/1
Zampa ... = 89
zatilla ... 106/5
zawi ... = 15/1
Zea .. 21
zea ... =16/25
zebra ... 34/2
zebra ... =106/7
Zehala ... = 2
Zela ... 89
zelleri ... 115/30
zema ... 99/27
zennara ... 11/3
zenon ... 89/2
zetus ... 86/6
zeus ... 89/1
ziclea ... 105/6
Zographetus ... 84
zona ... 34/19
zonaras .. 2/2
zulla ... 19/1


## INDEX—TRIVIAL NAMES


Acacia Blue ... H. 15
Ace I. 97–101
Admiral F. 24 & 36
Albatross ... B. 10
Amathusiids ... E.
Angle ... I. 27–32
Apefly ... H. 9
Apollo ... A. 12–13
Arab ... B. 18
Archduke F. 19
Argus D. 13
Assyrian F. 46
Autumn Leaf F. 33
Awl I. 1, 3, 6
Awlet
Awlking
Babul Blue ... H. 32
Banded Satyr ... D. 11
Banded Swallow tail ... A. 4, 26
Baron ... F. 18
Baronet ... F. 18
Bath White ... B. 4
Beak ... G. 1

rustan ... = 36/3
rusticanus ... = 36/1
Sabera ... 112
sagara ... = 105/2
saida ... = 1/14
sakita ... 76/1
sala ... = 62/3
sala ... 87/6
salanga ... 1/4
salsala ... 61/2
samadha ... 105/6
samana ... = 74/4
samanga ... = 87/8
sambara ... 19/2
samyutta ... = 74/4
Sancus ... 67
sangarava ... = 20/4
sangira ... = 105/3
sauguinoculus. 75/2
sankarya ... = 1/6
sao ... 34/5
sapitana ... 106/7
sarala ... 88/4
Sarangesa ... 26
saraya ... = 32/1
sargon ... = 95/2
sariputra ... = 108/3
Sartora ... = 2
saruna ...=115/30
sasivarna ... 80/4
Satarupa ... 19
sati ... 26/1
satra ... = 74/4
satra ... 106/8
saturatus ...=115/30
saturatus ... 16/17
satwa ... 84/1
savara ... 71/1
scanda ... = 95/1
Scelothrix ... = 34
schædia ... 88/2
schansiensis ... 34/11
schonherri ... 1/14
Scobura ... 64
scopas ... 62/4
scopulifera ... = 115/1
scortea ...=115/23
Sebastonyma ... 101
selangora ... 99/31
selas ... = 109/2
sema ... 16/20
semamora ... 144/1
semperi ... = 20/3
semperi ... = 25/2
sena ... 3/1
Sepa ... 86
separata ... 99/1
septentrionis ... = 2/10
septentrionum 56/1
seriata ... 115/15
sericea ... = 86/3
serina ... 106/7
serratulæ ... 34/16
sewa ... 85/2
sesendis ... = 26/3
shalgrama ... 80/5
shoaka ... 47/2
siamica ... 32/1
siamica ... 100/1
sidæ ... 34/13
sidata ... 115/25
sidha ... 74/3
sifa ...=115/28
sifanicus ... 34/15
sigida ...=115/24
signata ... = 15/1
Signeta ... 41
sikkima ... 99/31
sikkima ... = 115/1
silativa ... 108/2
silbetica ... = 105/2
silvius ... 47/2
similis ... 87/8
similis ... 109/3
similis ... = 115/5
simillima ... 1/8
simillima ... 115/1
simplex ... 18/1
simplicissima ... 1/11
simula ... 16/14
sindu ... 61/5
sinensis ... 115/5
singularis ... = 82/3
sinhalus ... = 62/2
sinica ... 24/4
sinicus ... = 34/19
sinina ... = 36/2
sirius ... 115/10
sitala ... 99/8
siva ... 109/7
smaragdinus ... 79/1
snellenı ... 16/20
sobrina ... 25/3
sodalis ... = 115/3
speyeri ... 34/15
Spialia ... = 34
spilothyrus ... 16/18
Spilothyrus ... = 35
splendens ... = 19/1
splendida ... 1/8
sravasta ... 106/3
staudingeri ... 34/9
staudingeri ... = 93/2
stellata ... 73/2
stellifer ... 61/3
Steropes ... = 47
stictica ... 115/18
stigma ... 111/5
stigmata ... 56/2
Stimula ... = 68
stotharti ... 16/28
stramineipennis 98/1
striata ... 2/10
striata ... 27/2
strigata ... 19/2
struwei ... 34/13
Suada ... 65
Suastus ... 62
subangulata ... = 31/1
subcaudata ... 5/1
subclarus ... 36/2
subcœlestis ... 1/8
subditus ... 56/1
subfasciata ... 77/1
subfasciatus ... 67/1
subfenestrata .. 115/15
subflava ... 99/3
subgrisea ... 62/1
subhyalina ... 109/5
submacula ... 99/17
submaculata ... 87/7
subochracea ... 115/5
subornata ... = 98/3
subradiatus ... = 55/1
subtestaceus ... = 60/2
subvittatus ... 55/1
sudodana ... 105/6
sukavata ... = 74/3
sulphurifera ... 99/37
sumata ... = 71/1
sumatrana ... 25/2
sumatrana ... = 31/1
sumatranus ... = 16/27
sumatrensis ... = 105/3
sumbawana ... 3/1
sumbawana ... 20/10
sumbawana ... 25/2
sumitra ... 16/11
sunias ... 106/8
superna ... = 34/1
sura ... = 31/1
surus ... = 88/2
swerga ... 65/1
swinhœi ... 35/4
swinhœi ... 68/1
sybirita ... 76/2
sylvanoides ... 109/4
sylvanus ... 109/2
sylvatica ... 111/8
syriaca ... 111/2
syricthus ... 32/2
Syricthus ... = 34
tabla ... 104/3
tabrica ... 24/7
Tacupa ... = 53
tages ... 36/2
Tagiades ... 20
tagiadoides ... = 90/1
talantus ... = 105/8
tali ... 59/2
Tamela ... 71
tamiata ... = 88/5
taminatus ... 1/13
tantra ... = 1/3
tanya ... 106/4
Tanyptera ... 56
Tapena ... 28
taprobanus ... 98/2
Taractrocera ... 104
tavoyana ... 87/8
taxilus ... 104/2
taylorii ... = 32/1
telesinus ... 87/5
Telesto ... = 43
Telicota ... 108

Redspot ... H. 59
Ring ... D. 14
Rockbrown ... D. 8
Rose ... A. 2
Royal ...H. 60–65
Rustic ... F. 41
Saffron ... H. 52
Sailer ... F. 26
Saphire ... H. 36
Saturn ... E. 9
Satyr ... D. 9–11
Satyrids ... D
Sawtooth ... B. 7
Sergeant ... F. 25
Sergeantmajor .. F. 23
Silverfork ... D. 3
Silverline ...H. 57–58
Silverspot ... F. 39
Silverstreak ... F. 39
Silverstreak Blue ... H. 46
Silverstripe D. 3 ; F.39
Siren ... F.11
Skipper ... I. 33–36
Skippers ... I
Snow Apollo ... A. 13
Spangle ... A. 4
Spark ... H. 91
Strightwing Blue H. 26
Striped Ringlet D. 18
Sulphur ... B. 13
Sunbeam ... H. 45
Swallowtails ... A
Swift I. 115–116
Swordtail ... A. 5
Tabby ... F. 29
Tiger ... C. 2
Tigerbrown ... D. 5
Tinsel ... H. 83
Tit ...H. 84–86
Torpedo ... I. 117
Tortoise shell ... F. 36
Tree Brown ... D. 3
Treenymph ... D. 3
Tree Yellow ... B. 12
True Blue ... H. 23
Una ... H. 25
Vagrant ... F. 43
Viscount ... F. 18
Wall ... D. 4
Walnut Blue ... H. 43
Wanderer ... B. 20
White Emperor F. 4
Whites ... B.
Wights ... I. 114
Windmill ... A. 2
Witch ... H. 93
Wizard .. F. 32
Woodbrown ... D. 3
Yam ... H. 56
Yamfly ... H. 54–55
Yellow Peril ... I. 75
Yellows B. 12.15.16
Yellow Swallow-tail ... A. 4
Yellow vein ... I. 71
Yeoman ... F. 45
Zebra ... A. 7
Zebra Blue ... H. 27

## THE IDENTIFICATION OF INDIAN BUTTERFLIES.

### *Corrections to Plates.*

I. *Alter* A 2.16 *to* A 2. 17.

II.-V. No change.

VI. *Alter* A 12.1 *to* A 11.1.

VII. *Alter* B. 6.4, 5 and 6 *to* B. 6.5, 6 and 7.

VIII. In title *alter* 8 and 9 *to* 9 and 10.

IX. *Alter* B. 15.6 *to* B. 15.7 : B. 16.5 *to* B. 16.6 : B. 16.6 *to* B. 16.7.

X. No change.

XI. *Alter* D. 3.46, 49, 50 and 51 *to* D. 3.47, 50, 51 and 52.

XII. *Alter* D. 3.16, 20, 22, 23, 27, 31, 35, 38, 39, 40, 44, and 45 *to* D. 3.17, 21, 23, 24, 28, 32, 36, 39, 40, 41, 45 and 46.

XIII. *Alter* D. 8.6 *to* D. 8.5. In title *alter* 10 *to* 11 and *insert* before it '9. Karanasa : 10. Parœneis '.

XIV. No change.

XV. *Alter* D. 25.10 and 11 *to* D. 25.11 and 12.

XVI-XVII. No change.

XVIII. *Alter* F. 7.4. and 7 *to* F. 7.5. and 8. *Add* ' 1 ' *after* F. 11.

XIX. *Alter* F. 18. 15, 17 and 18 *to* F. 18.14, 16 and 17.

XX. *Alter* F. 18.19, 21, 22, 24, 27, 28, 30, 31, *to* F. 18.18, 20, 21, 23, 26, 29, 30.

XXI. No change.

XXII. *Alter* F. 26.29 and 34 *to* F. 26.28 and 32.

XXIII. No change.

XXIV. *Alter* F. 39.12 and 13 *to* F. 39.13 and 14 : F. 40.2, 3 and 7 *to* F. 40.3, 4 and 5.

XXV. No change.

XXVI. *Alter* G. 4.7 *to* G. 4.6 : H. 36.5 *to* H. 36.6 : H. 42.7 *to* 42.8. In title *substitute* ' Heliophorus ' *for* ' Ilerda.'

XXVII. *Alter* H. 20.14, 18 and 19 *to* H. 20.15, 19 and 20 : H. 44.5 *to* H. 45.5: H. 45.1 *to* H. 46.1 : 47.1 *to* 48.1 : 48.1 and 2 *to* 49.1 and 2 : 94.1 *to* 95.1 In title *alter* 44.45—48 and 94 *to* 45.46—49 and 95.

XXVIII. *Alter* 49 in last row *to* 72 and increase all other numbers by 1 except 2, 5, 7, 10, 14, 12 in the 1st row and 1, 9 in the second row. In title *alter* 49 *to* 50.

XXIX. First line, increase all *First* numbers by 1. Second line, *alter* 56.2 *to* 58.1 : 56.13 *to* 58.11 : 57.2 *to* 59.1 : 58.1 *to* 60.1 : 59.1 *to* 61 2 : and increase remaining *First* numbers by 2. Third and fourth lines, increase all *first* numbers by 2.

Fifth line, *alter* 87.2 *to* 89.3 and increase all other *First* numbers by 2. Sixth line, *alter* 88 *to* 90 under first four figures : 88.12 *to* 90.13 : 90, 91, 92 and 93 *to* 91, 92, 93 and 94.

In title *alter* 50--52 *to* 51—53 : 53—55 *to* 54—56 : 56- 57 *to* 57—59 : 58—63 *to* 60—65 : 64—70 *to* 66—72 : 71 –78 *to* 73—80 : 79—80 *to* 81—82 : 81 *to* 83 : 82—84 *to* 84—86 : 86—93 *to* 87—94.

XXX—XXXII. No change.

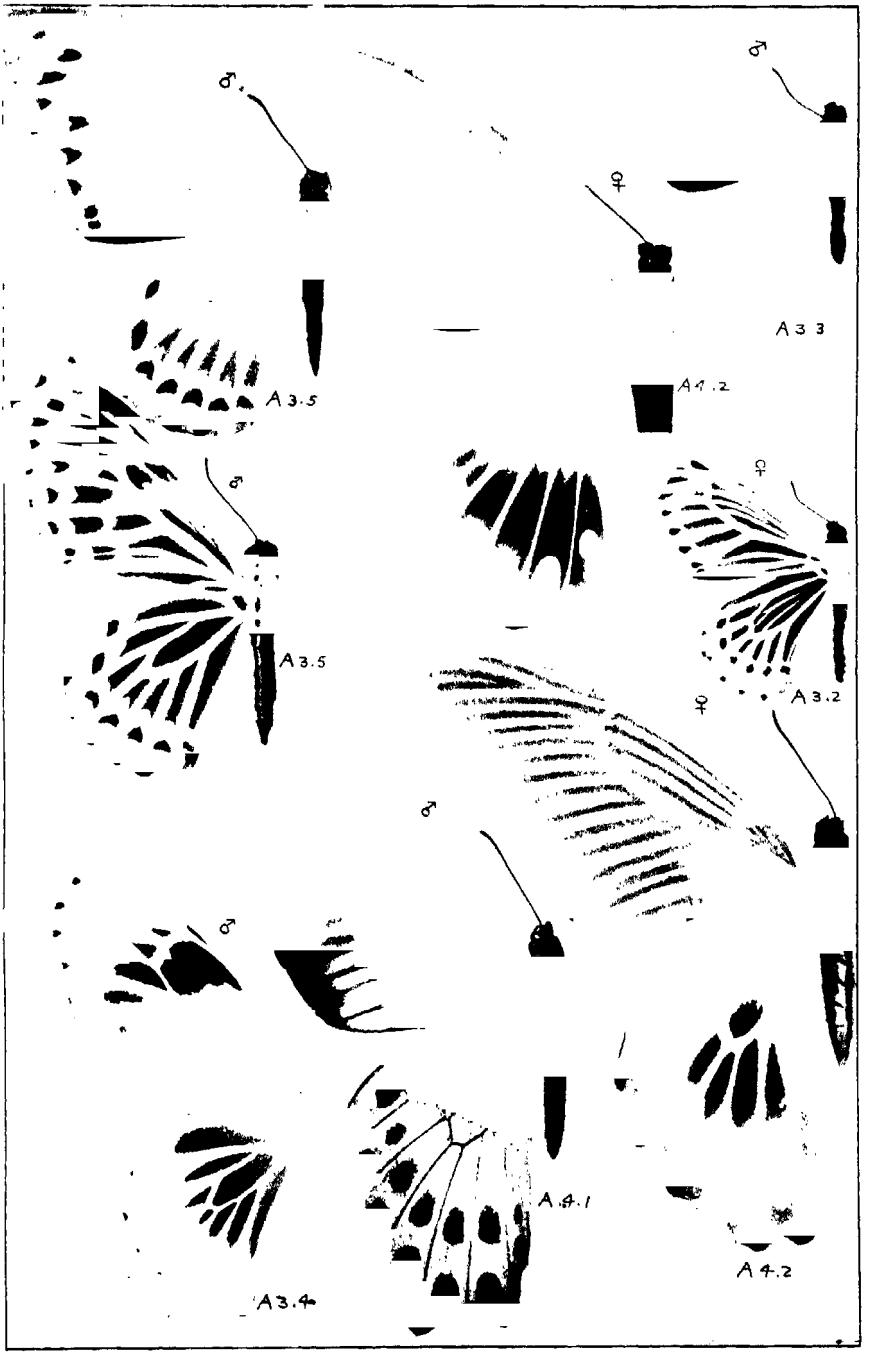
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Begum ... F. 3
Bhutan Glory ... A. 1
Birdwing ... A. 1
Blackbodied Swallow Tail. A. 4
Black Prince ... F. 7
Blackvein ... B. 5
Blues ... H.
Blue Admiral ... F. 36
Blue bottle ... A. 6
Blue cat's eye... D. 19
Bluejohn ... H. 4
Bob ... I. 59–66
Brilliant ... H. 3
Brimstone ... B. 14
Brownie ... H. 5
Brown Prince ... F. 7
Browns ... D.
Bushblue ... H. 50
Bush brown ... D. 2
Cabbage white B. 4
Caliph ... E. 11
Camberwell beauty ... F. 36
Cardinal ... H. 80
Castor ... F. 49
Catseye .. D. 15, 19
Cerulean ... H. 31
Chocolate Soldier ... F. 36
Ciliate blue ... H. 32
Circe ... F. 12
Clipper ... F. 20
Clouded Yellow B. 16
Clubtail ... A. 2
Columbine ... G. 7
Comma ... F. 36
Commander ... F. 24
Commodore ... F. 24
Constable ... F. 16
Coon ... I. 67
Copper ... H. 35
Cornelian ... H. 88
Coster ...F. 51, 52
Count ... F. 18
Courtesan ... F. 10
Courtier ... F. 9
Crimson Tip ... B. 18
Crow ... C. 3
Cruiser ... F. 44
Cupid ...H. 16–18
Cyclops ... D. 17
Danaid ... C
Dandy ... F. 50
Darkie ... H. 6
Dart I. 102–108
Darter I. 109–110
Dartlet ... I. 104
Dawnfly ... I. 10–13
Demon ... I. 68–74
Desert Apollo ... A. 12
Diadem ... D. 21
Dingy skipper ... H. 36
Dragontail ... A. 10
Dryad ... E. 3
Duchess ... F. 18
Duffer ... E. 10
Duke ... F. 18
Dwarf ... B. 2
Earl ... F. 18
Eggfly ... F. 30
Elegant Emperor F. 6
Emerald ... H. 1
Emigrant ... B. 11
Emperor ... F. 4–7
Empress ... F. 13
Evening Brown D. 24
Faun ... E. 2
Flash ...H. 87–90
Flat ... I. 15–26
Flitter ... I. 81–85
Forester ... D. 3
Freak ... F. 14
Fritillary ... F. 39.40
Gem .. H. 2
Golden Emperor F. 5
Goldenfork ... D. 3
Gorgon ... A. 8
Grass Blue ... H. 22
Grass Dart .. I. 105
Grass Yellow ... B. 15
Great Orange Tip ... B. 19
Greenvein .. B. 4
Guava Blue ... H. 89
Hairstreak H. 37, 42–44
Harlequin ... G. 5–6
Heath ... D. 6
Hedge Blue ... H. 20
Helen ... A. 4
Hooked Swallow Tail ... A. 8
Hopper ... I. 47–58
Imperial H. 67, 76–79
Indian Orange Tip ... B. 17
Jay ... A. 6
Jester ... F. 38
Jezabel ... B. 6
Joker ... F. 48
Judy ... G. 4
Jungle Glory ... E. 5
Jungle King ... E. 6
Jungle Queen ... E. 4
Kaiser ... F. 15
Kaiserihind ... A. 9
Knight ... F. 21
Kohinoor ... E. 8
Labyrinth ... D. 3
Lacewing ... F. 47
Lancer ... I. 86–87
Lascar ... F. 26
Leaf ... F. 33–34
Leaf Blue ... H. 47
Leopard ... F. 42
Lilacfork ... D. 3
Lime Blue ... H. 21
Lime Butterfly... A. 4
Line Blue ... H. 30
Little White ... B. 3
Little Orange Tip ... B. 18
Lurcher ... F. 31
Malayan ... H. 12
Mandarin ... D. 1
Mandarin Blue H. 66
Map ... F. 27
Maplet ... F. 28
Marbled Skipper. H. 33–35
Marbled White D. 12
Marquis ... F. 18
Meadow Blue ... D. 7
Meadow Brown H. 24
Midget ... I. 111
Mime ... A. 3
Mongol ... F. 37
Monkey puzzle... H. 81
Mormon ... A. 4
Moth Butterfly... H. 95
Mottle .. H. 7
Mountain Satyr D. 10
Mystic ... D. 3
Nawab ... F. 2
Nigger ... D. 16
Nymph ... C. 1
Nymphalids ... F.
Oakblue ...H. 48–50
Oakleaf ... F. 34
Onyx ... H. 82
Orange Tip ... B. 17-19
Owl ... D. 20
Painted Lady ... F. 36
Palmdart ... I. 108
Palmer ... I. 88–96
Palmfly ... D. 25
Palmking ... E. 7
Pan ... E. 1
Pansy ... F. 35
Panther ... F. 32
Pasha ... F. 8
Peablue ... H. 29
Peacock .. A. 4
Pierrot H. 8,13–15, 34
Pioneer ... B. 8
Plane ... H. 92
Plush ... H. 94
Plushblue ... H. 50
Poilu ... I. 74
Popinjay ... F. 17
Posy ...H. 77–78
Prince ... F. 7
Psyche ... B. 1
Puffin ... B. 10
Punch ... G. 10
Punchinello ... G. 2
Queen of Spain... F. 39
Quaker ...H. 10–11
Rajah ... F. 1
Raven ... A. 4
Red Admiral ... F. 36
Redbodied Swallow Tail ... A. 2
Redbreast ... A. 4
Rededge ... H. 53
Redeye ... I. 75–80



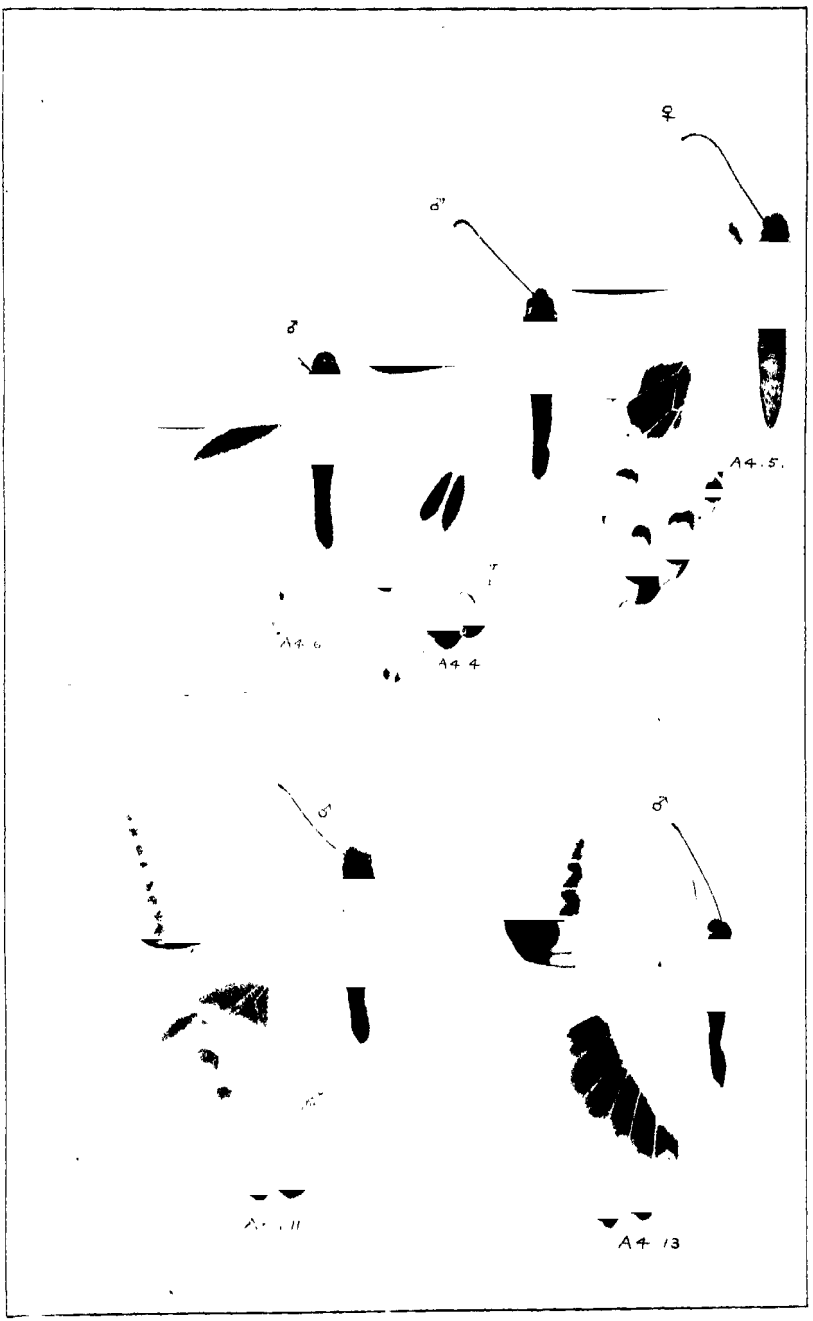

A. **Papilionidae.** 1. *Troides*: 2. *Byasa*: 3. *Chilasa*.

*See agenda and corrigenda page 302.*



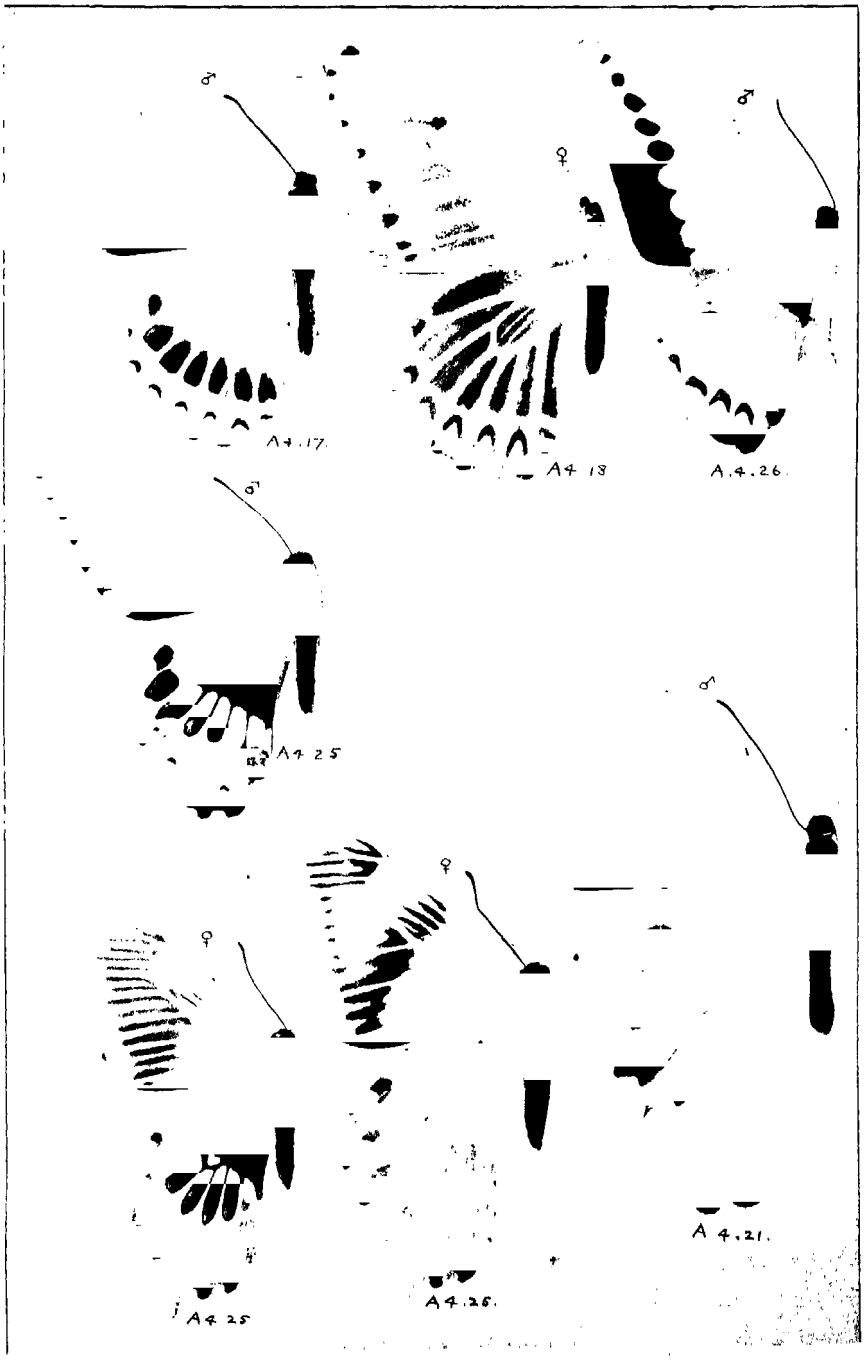

A. **Papilionidae.** 3. *Chilasa*: 4. *Papilio.*

*See agenda and corrigenda page*




A. **Papilionidae.** 4. *Papilio.*

*See agenda and corrigenda page 302.*



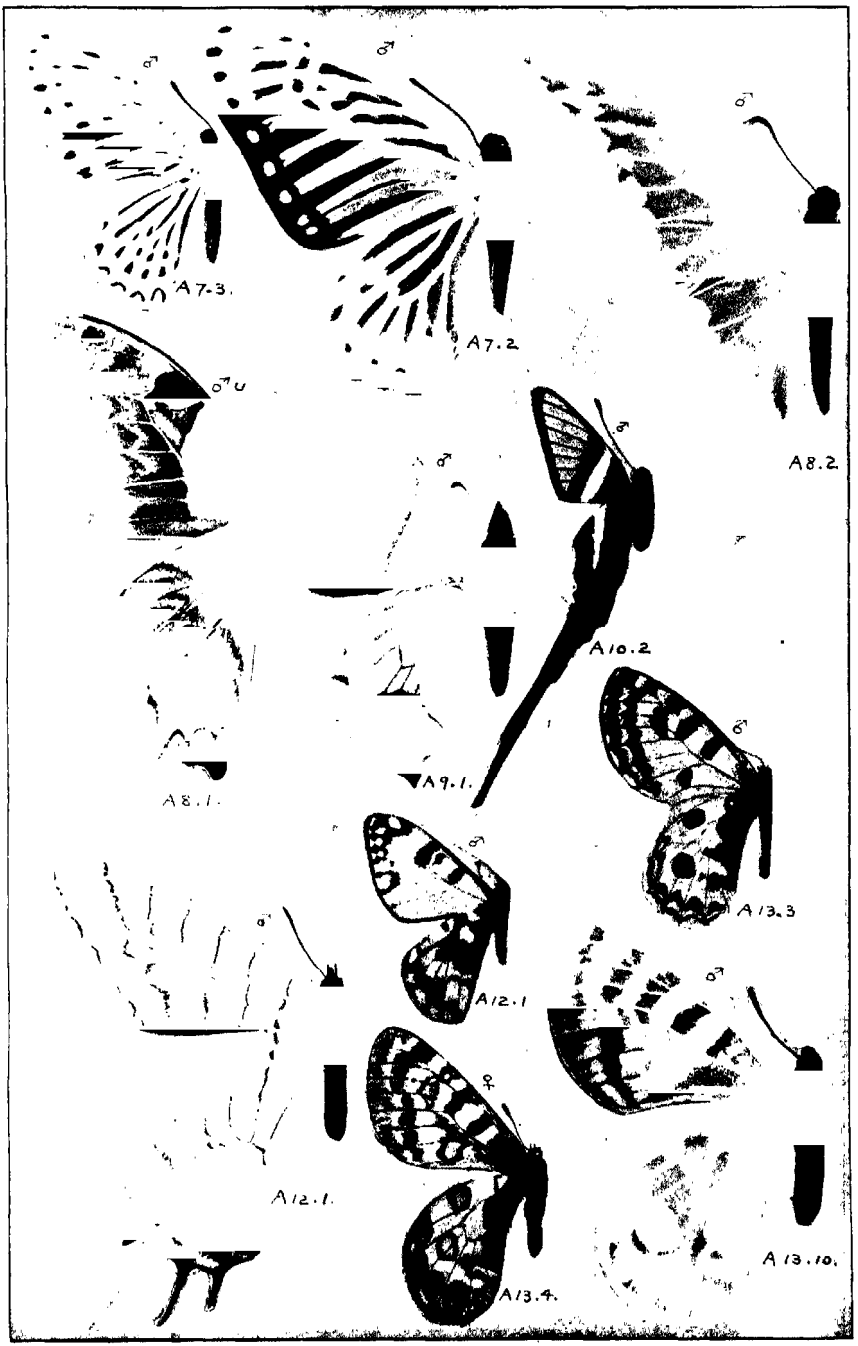

**A. Papilionidae.** 4. *Papilio.*

*See agenda and corrigenda page 302.*



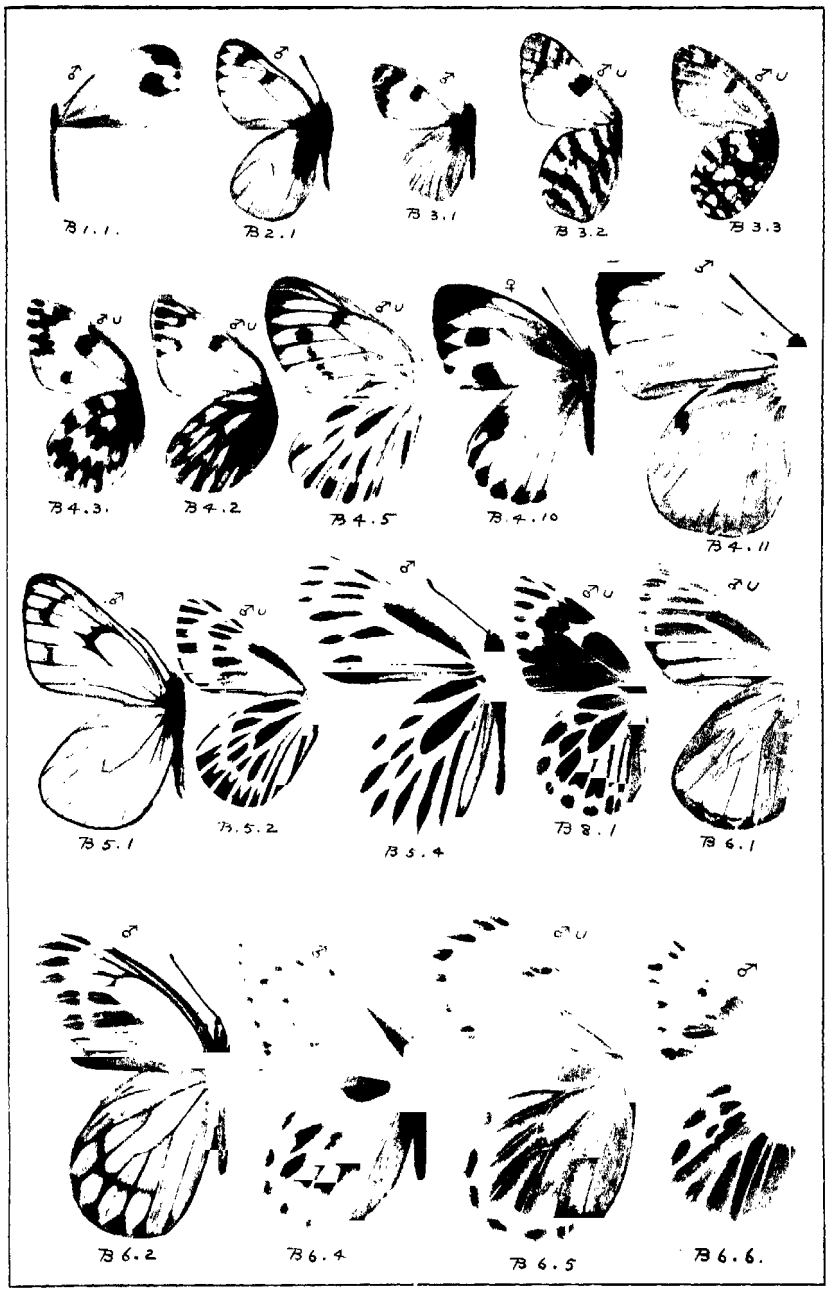

A. **Papilionidae.** 4. *Papilio*: 5. *Pathysa*: 6. *Zetides*.

*See agenda and corrigenda page 302*



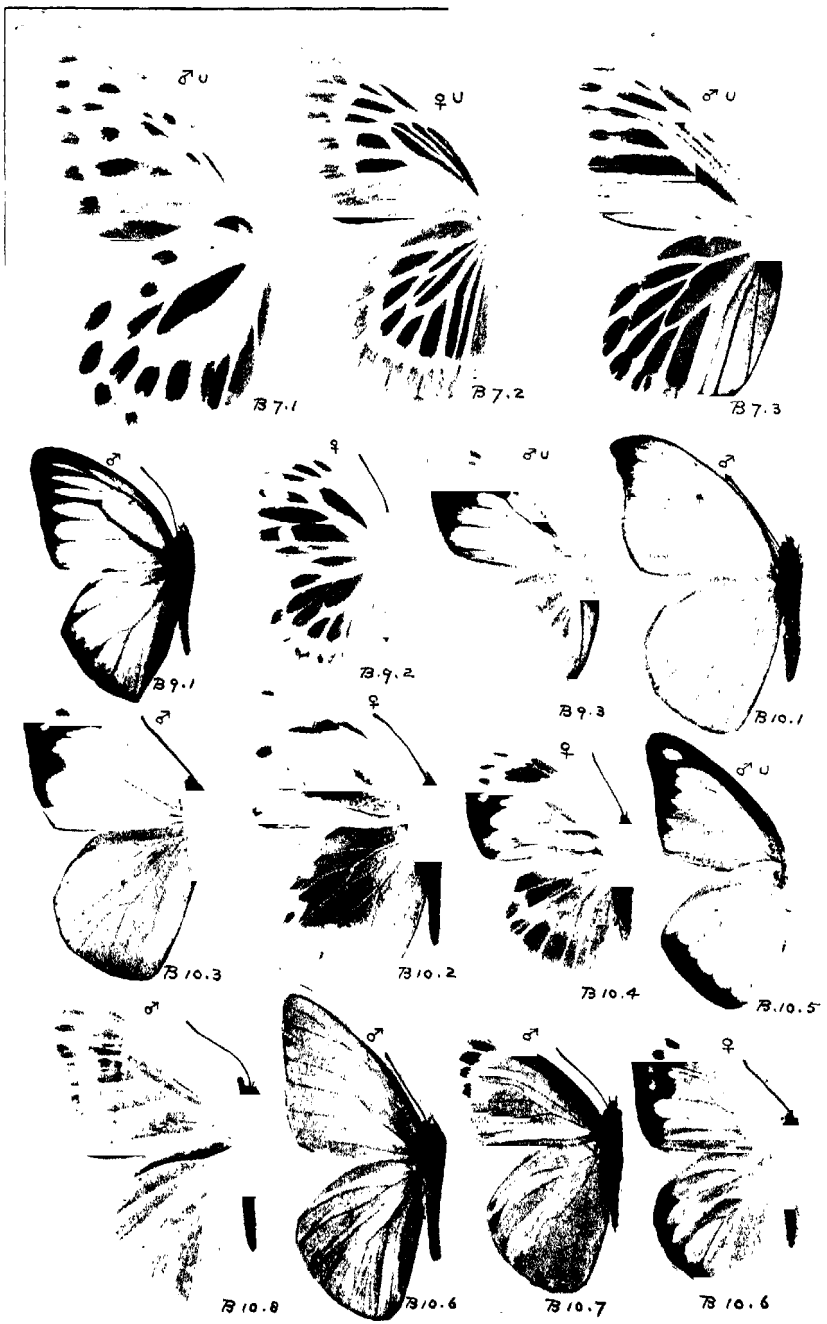

A. **Papilionidae.** 7. *Paranticopsis*: 8. *Meandrusa*: 9. *Teinopalpus*: 10. *Leptocircus*: 11. *Armandia*: 12. *Hypermnestra*: 13. *Parnassius*.

*See avenda and corrigenda page 302.*



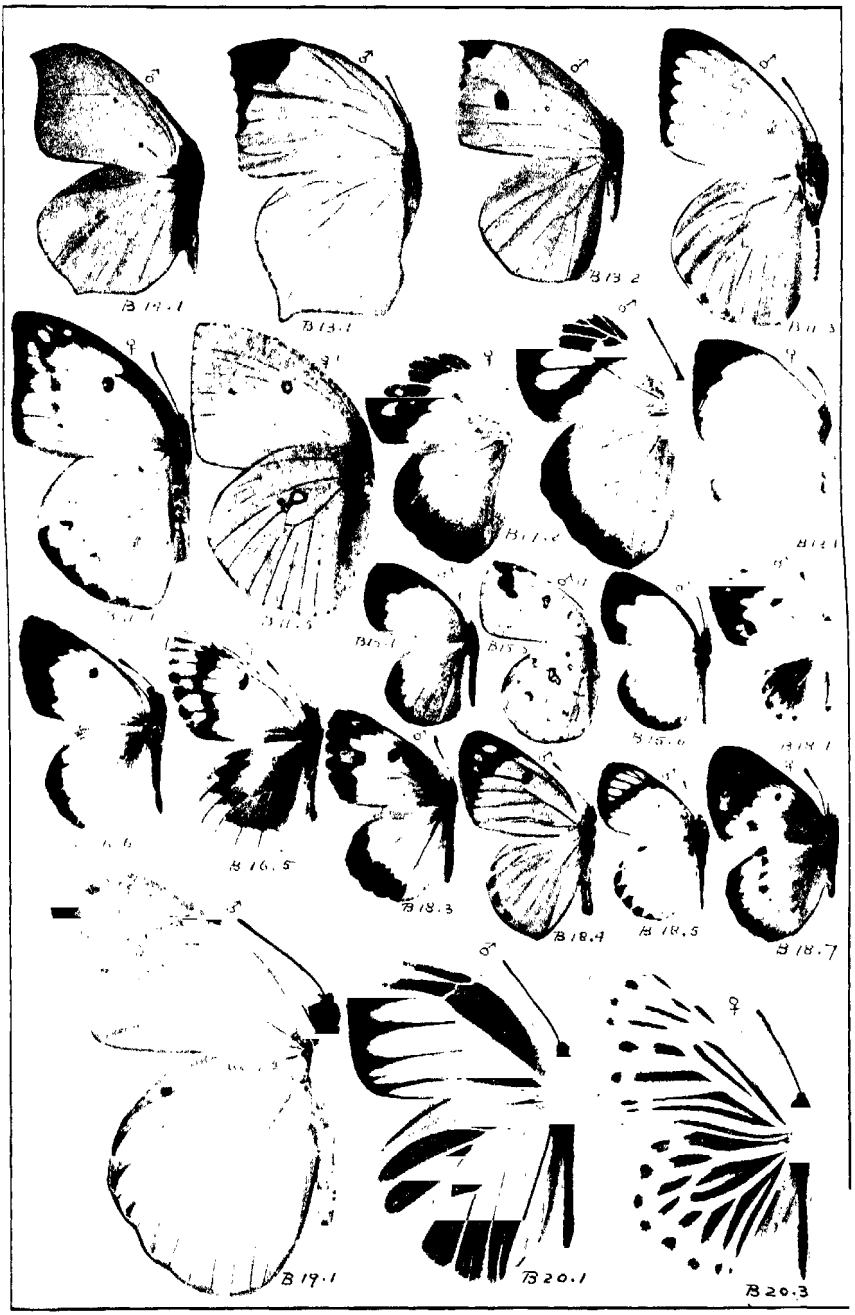

B. **Pieridae.** 1. *Leptosia*: 2. *Baltia*: 3. *Synchloe*: 4. *Pieris*: 5. *Aporia*: 6. *Delias*: 8. *Anaphaeis*.

*See agenda and corrigenda page 302.*



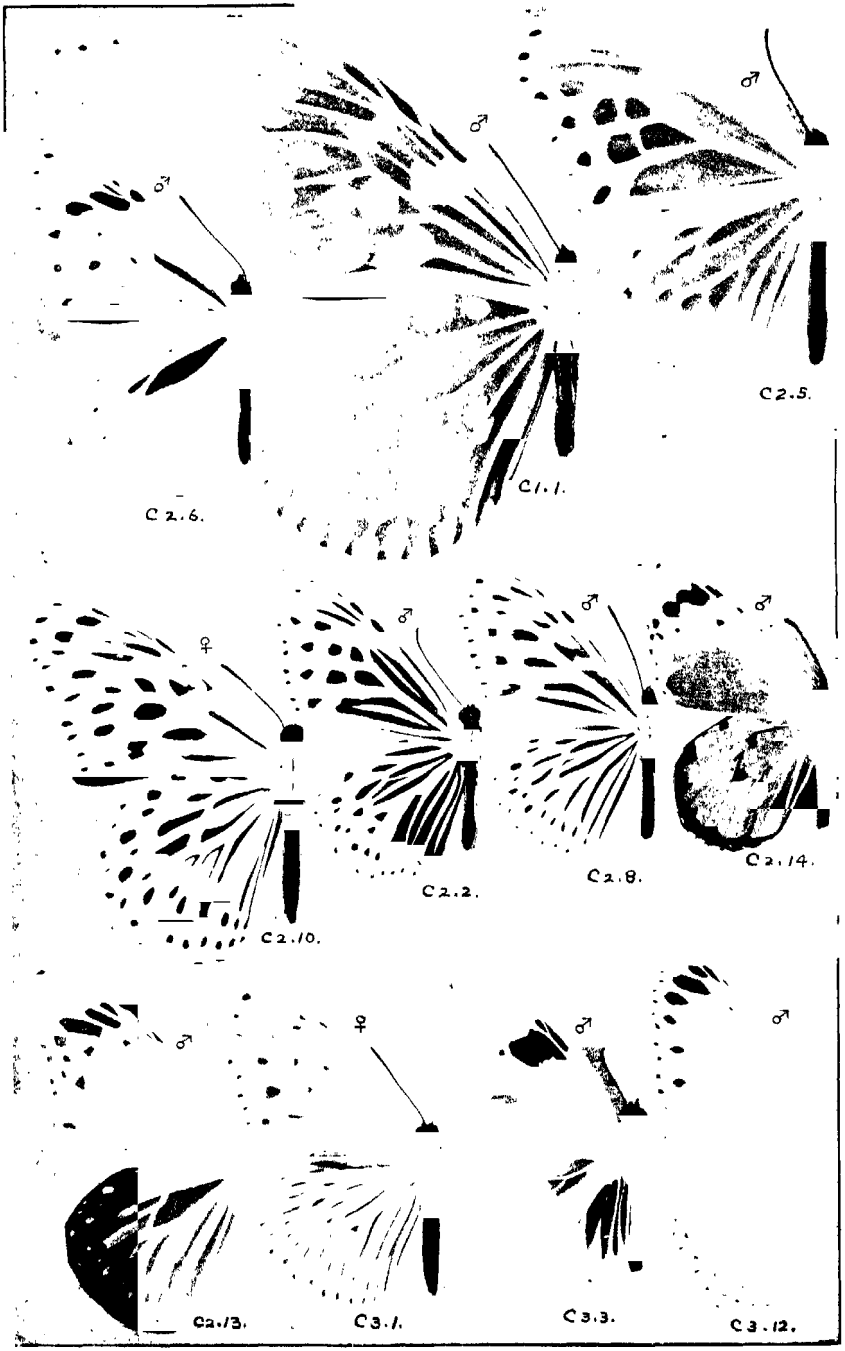

B. **Pieridae.** 7. *Prioneris*: 8. *Huphina*: 9. *Appias*.

*See agenda and corrigenda page 302.*

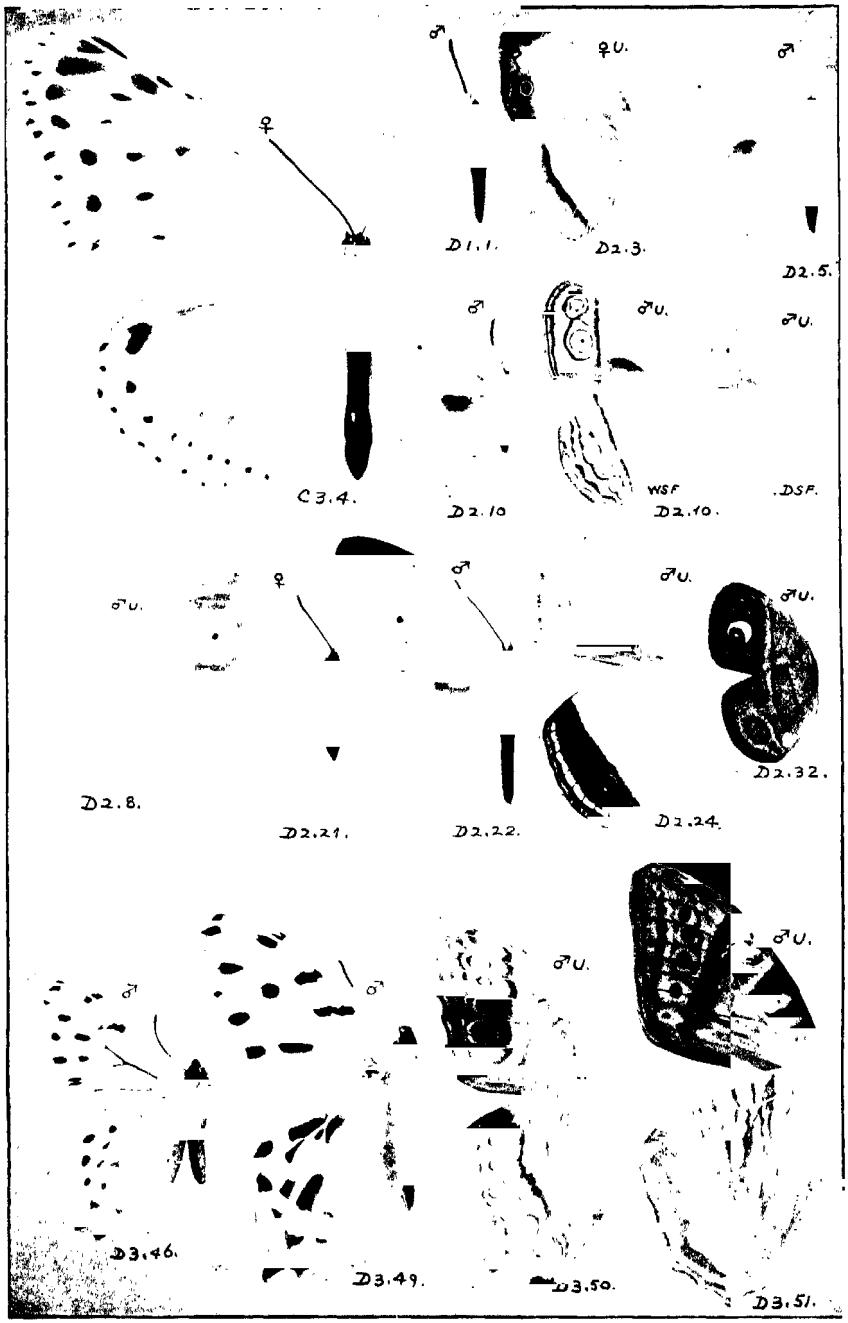


B. **Pieridae.** 11. *Catopsilia*: 12. *Gandaca*: 13. *Dercas*: 14. *Gonepteryx*: 15. *Terias*: 16. *Colias*: 17. *Ixias*: 18. *Colotis*: 19. *Hebomoia*: 20. *Pareronia*.

*See agenda and corrigenda page 302.*




C. **Danaidae.** 1. *Hestia*: 2. *Danais*: 3. *Euploea.*



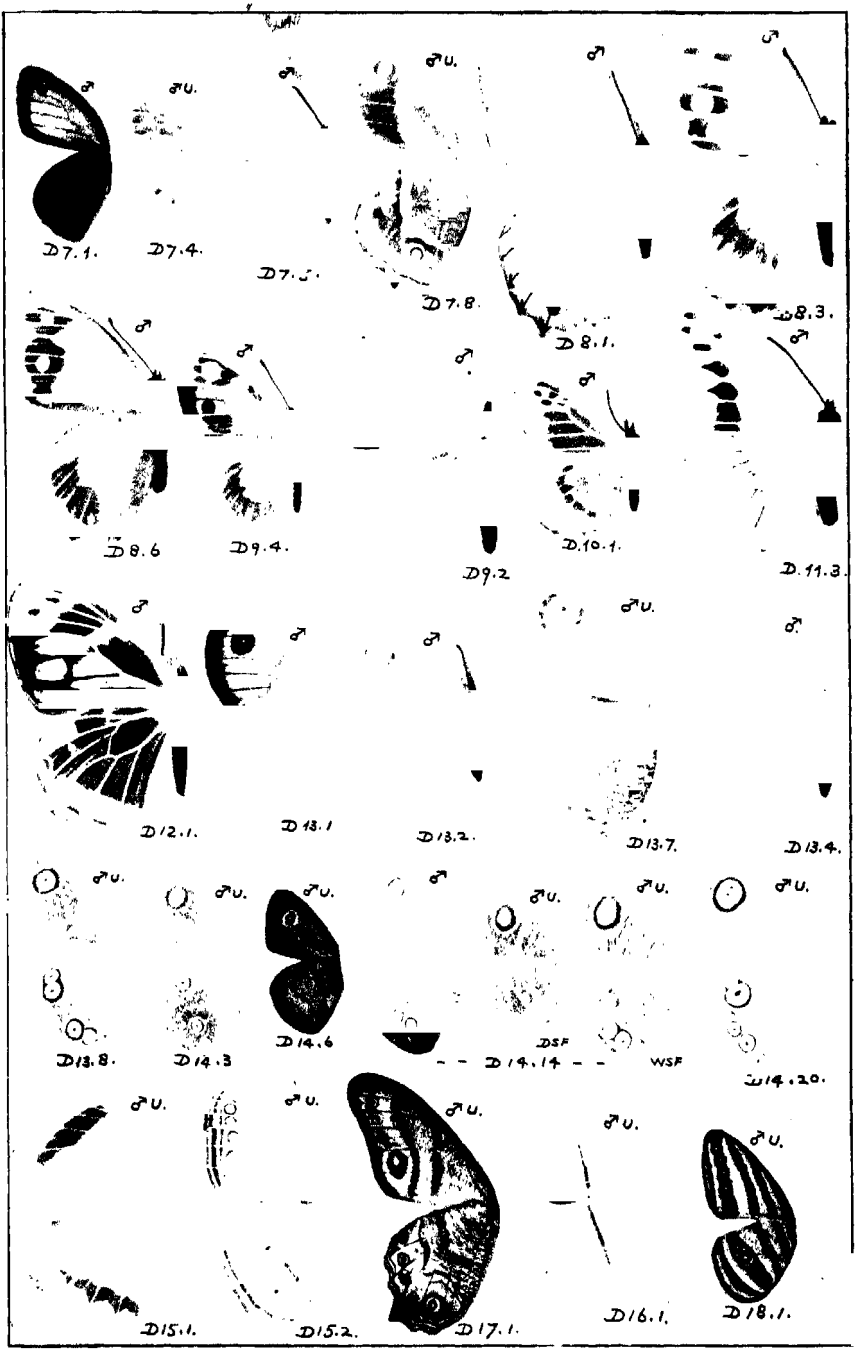

C. **Danaidae.** 8. *Euploea.*
D. **Satyridae.** 1. *Mandarinia*: 2. *Mycalesis*: 3. *Lethe.*

*See avenda and corrigenda page 302.*



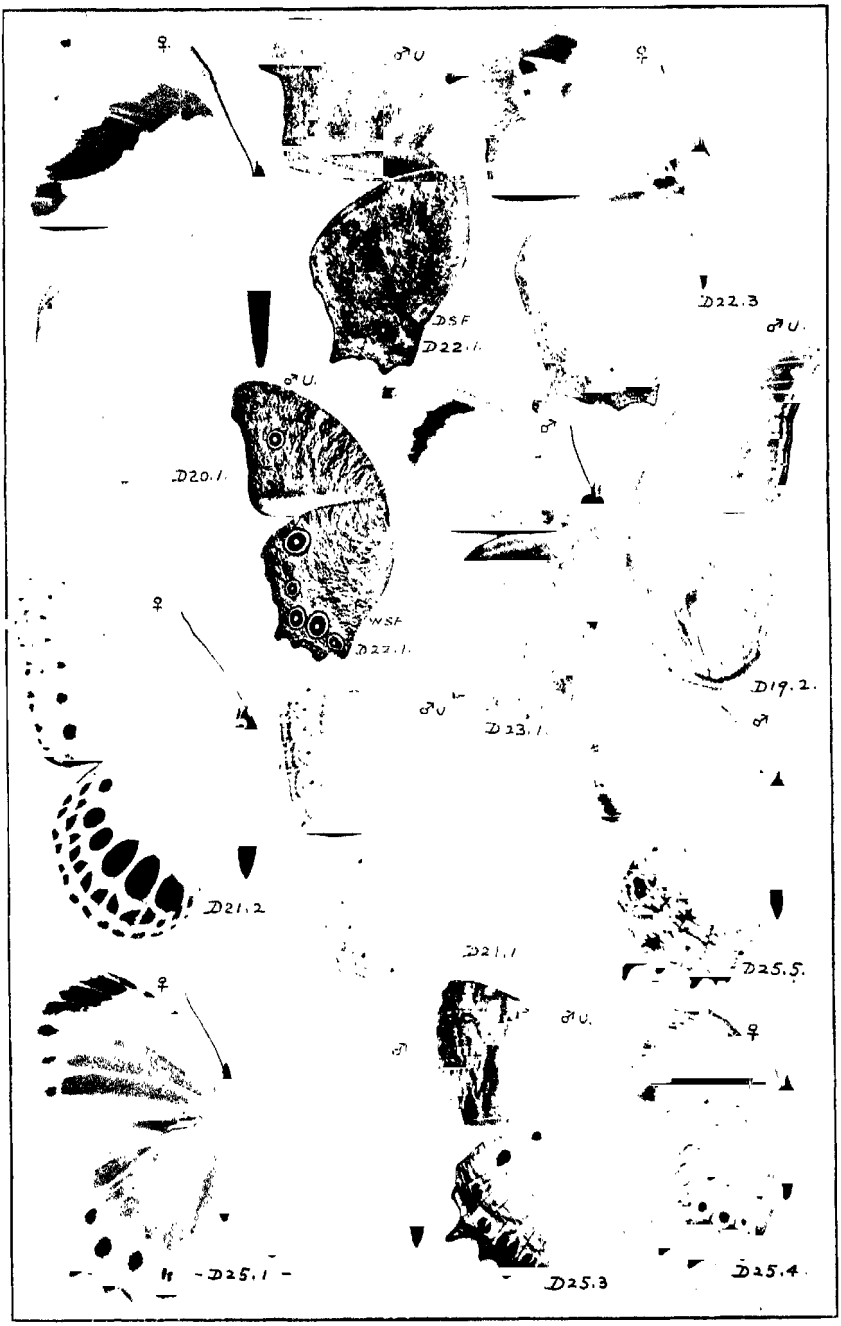

D. **Satyridae.** 3. *Lethe*: 4. *Pararge*: 5. *Orinoma*.

*See agenda and corrigenda page 302.*



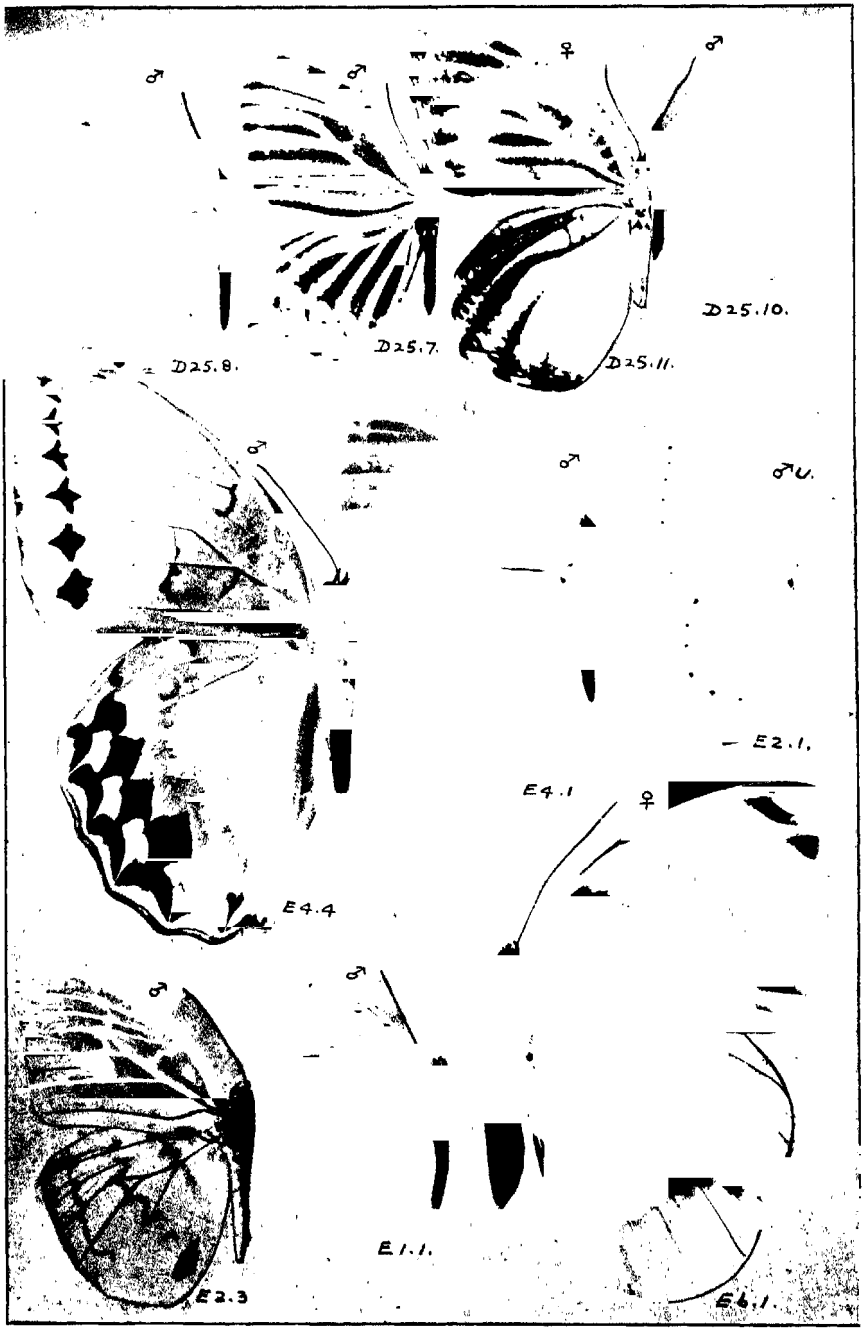

D. **Satyridae.** 7. *Maniola*: 8. *Eumenis*: 10. *Aulocera*: 12. *Arge*: 13. *Erebia*: 14. 15. *Zipoetis*: 17. *Erites*: 16. *Orsotriaena*: 18. *Ragadia*.

*See agenda and corrigenda page 302.*



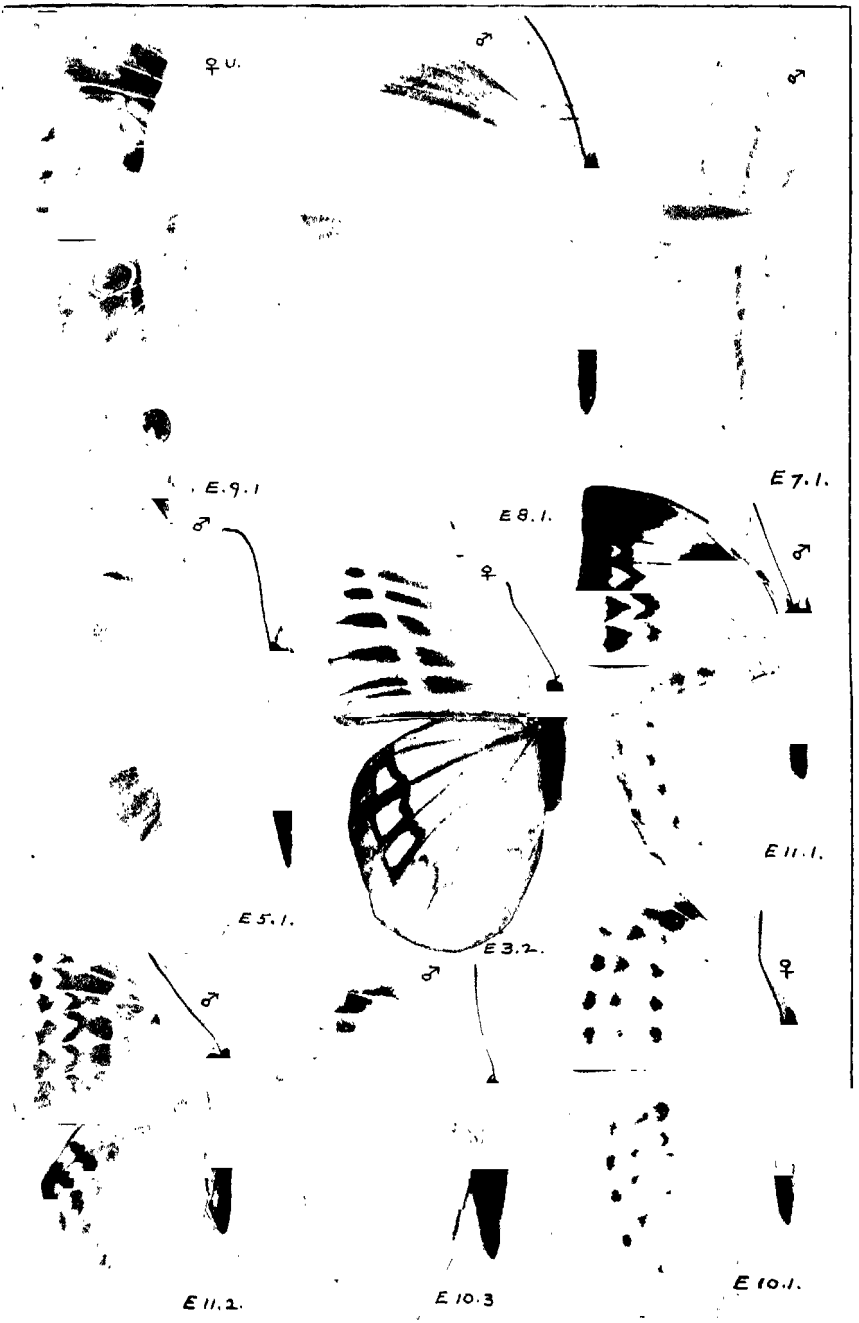

D. **Satyridae.** 20. *Neorina*: 22. *Melanitis*: 23. *Cyllogenes*: 19. *Coelites*: 21. *Anadebis*: 25. *Elymnias*.

*See agenda and corrigenda page 302.*



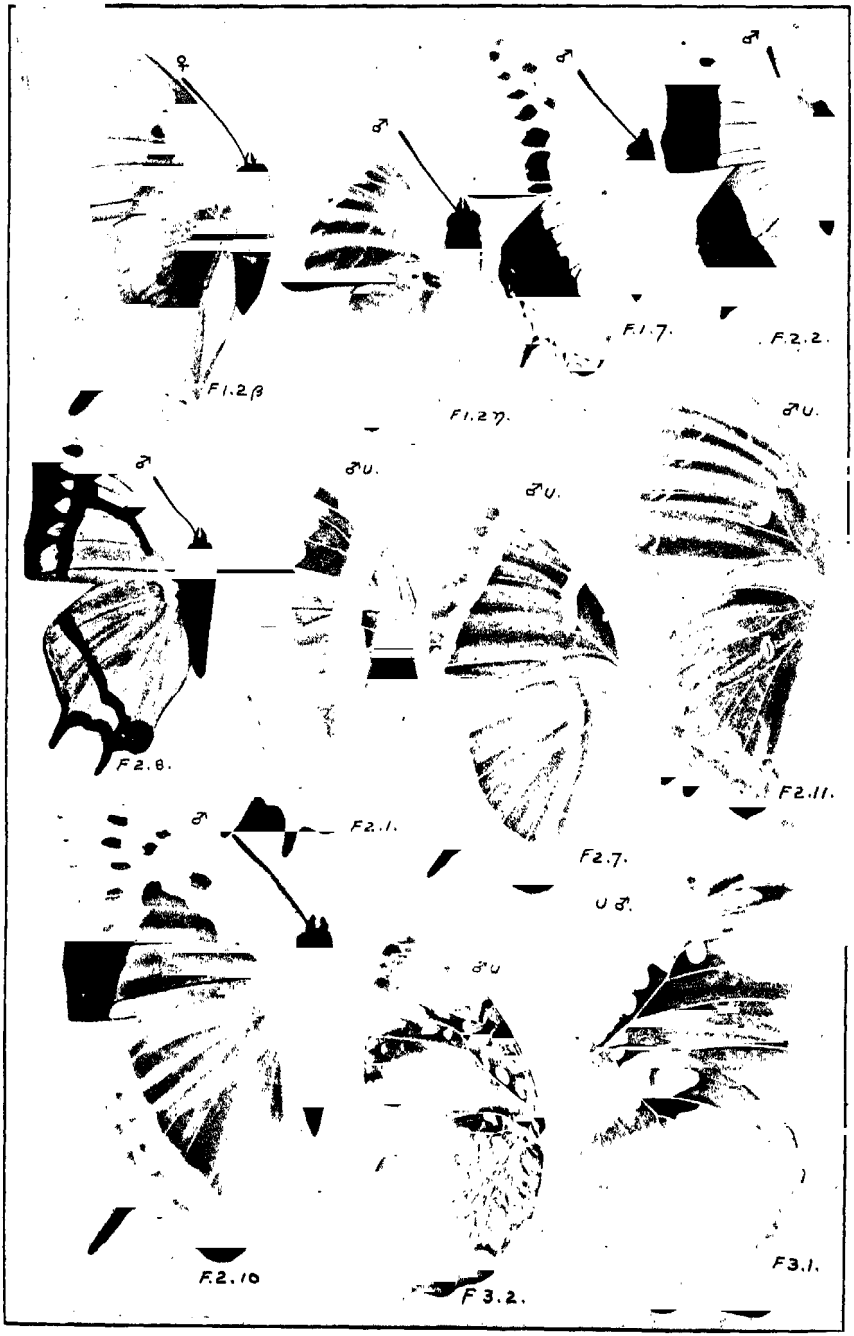

D. **Satyridae.** 25. *Elymnias.*
E. **Amathusiidae.** 4. *Stictopthalma*: 2. *Faunis*: 1. *Xanthotaenia*: 6. *Thauria.*

*See agenda and corrigenda page 302.*



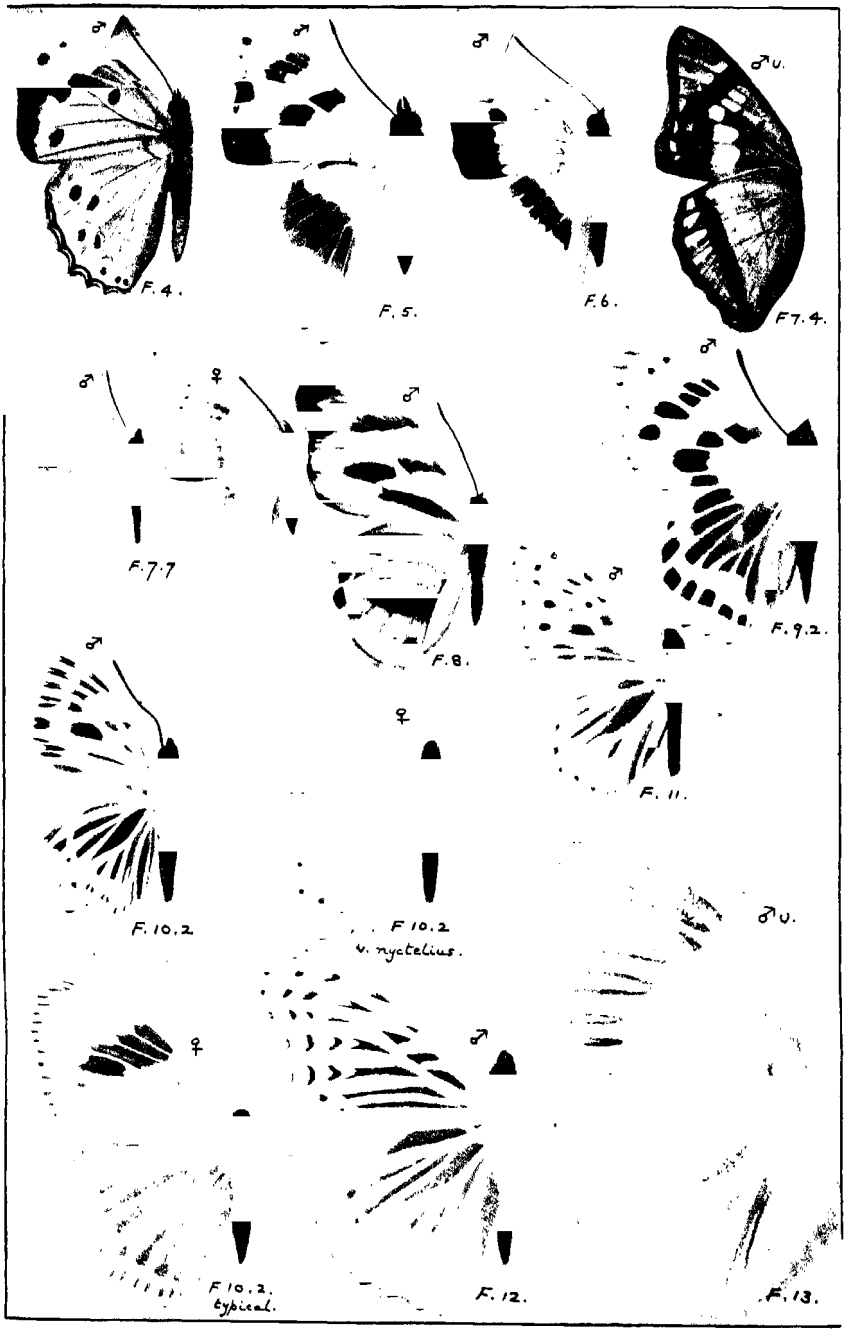

E. **Amathusiidae.** 9. *Zeuxidia*: 8. *Amathuxidia*: 7. *Amathusia*: 5. *Thaumantis*: 8. *Aemona*: 11. *Enispe*: 10. *Discophora*.

*See agenda and corrigenda page 302.*



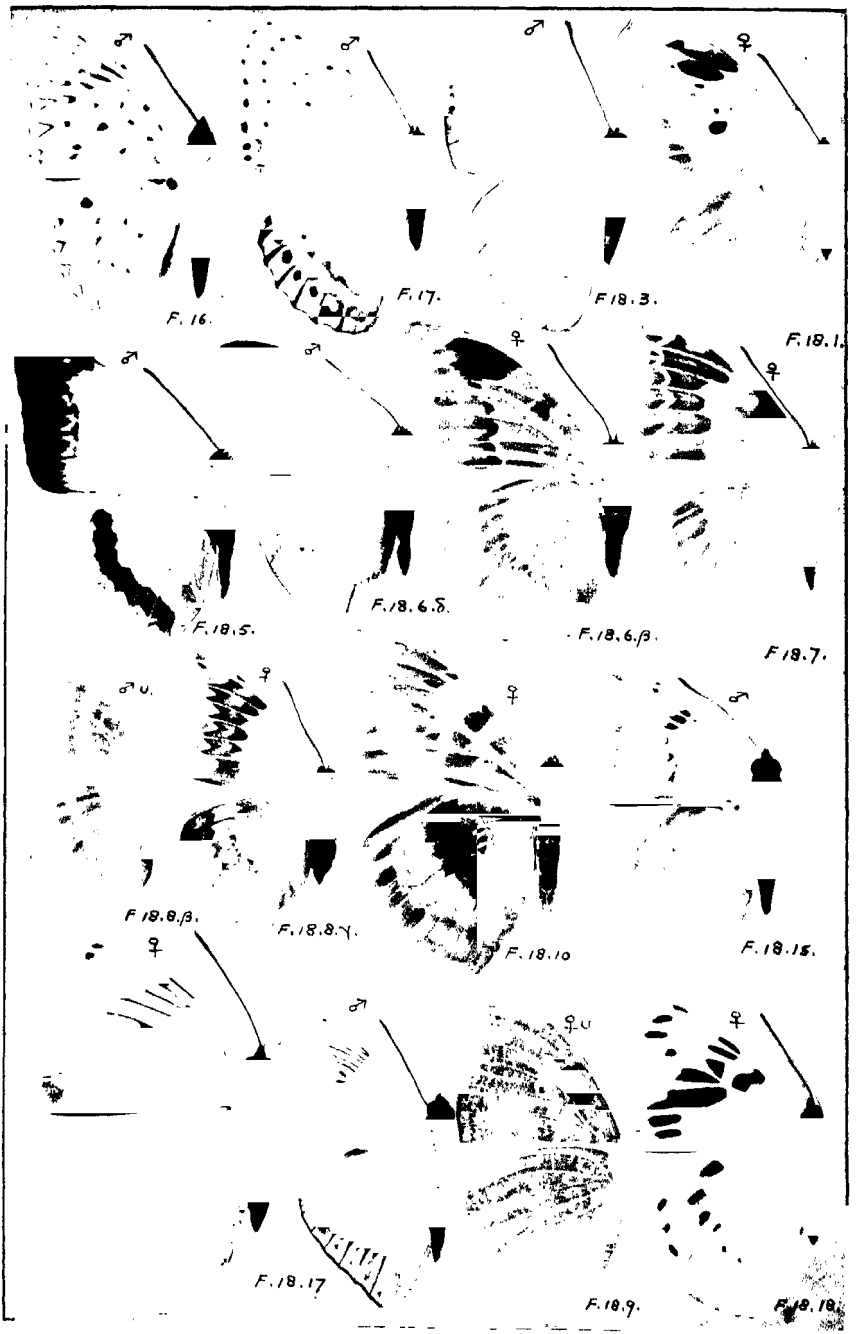

F. **Nymphalidae.** 1. *Charaxes*; 2. *Eriboea*; 3. *Prothoe*.

*See agenda and corrigenda page 302.*



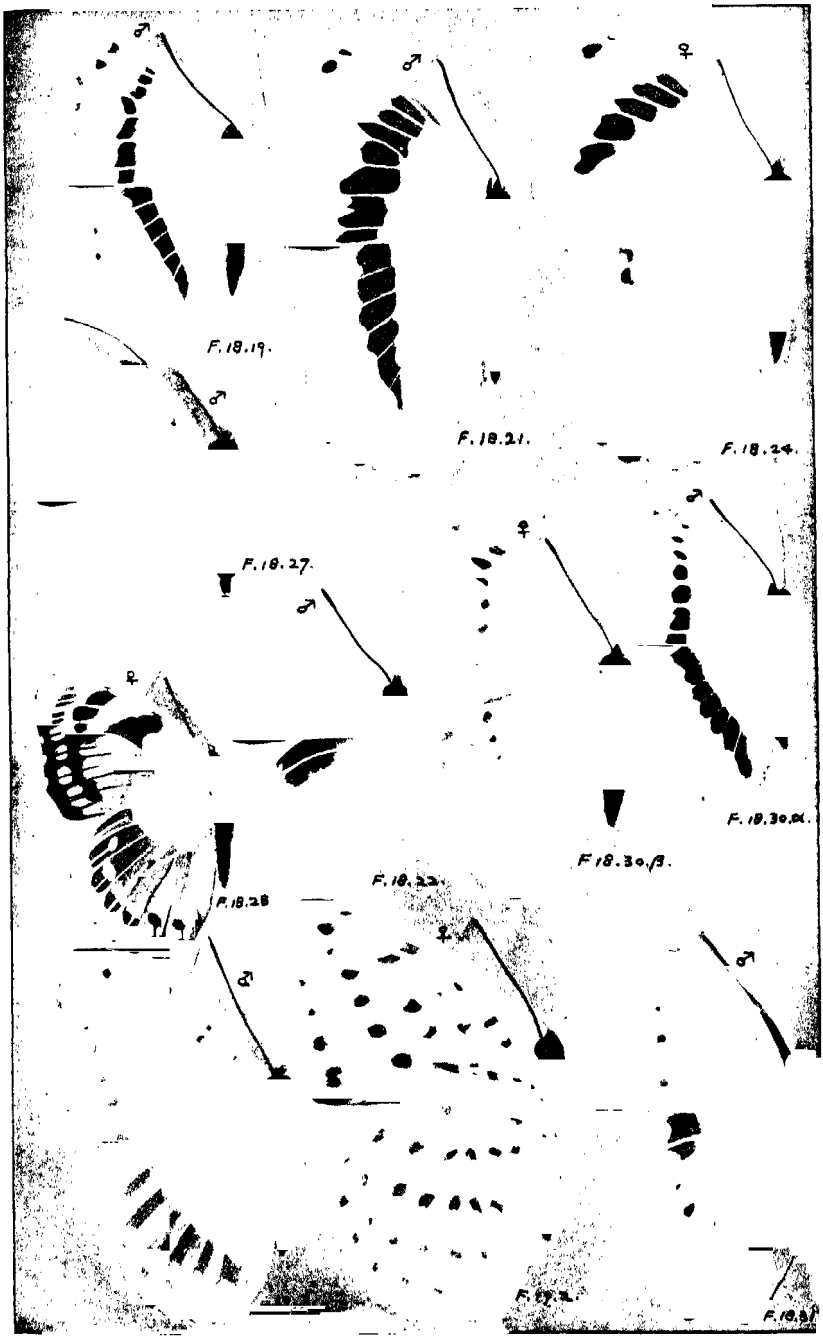

F. **Nymphalidae.** 4. *Helcyra*: 5. *Dilipa*: 6. *Eulaceura*: 7. *Apatura*: 8. *Herona*: 9. *Sephisa*: 10. *Euripus*: 11. *Diagora*: 12. *Hestina*: 13. *Sasakia*.

*See agenda and corrigenda page 302.*



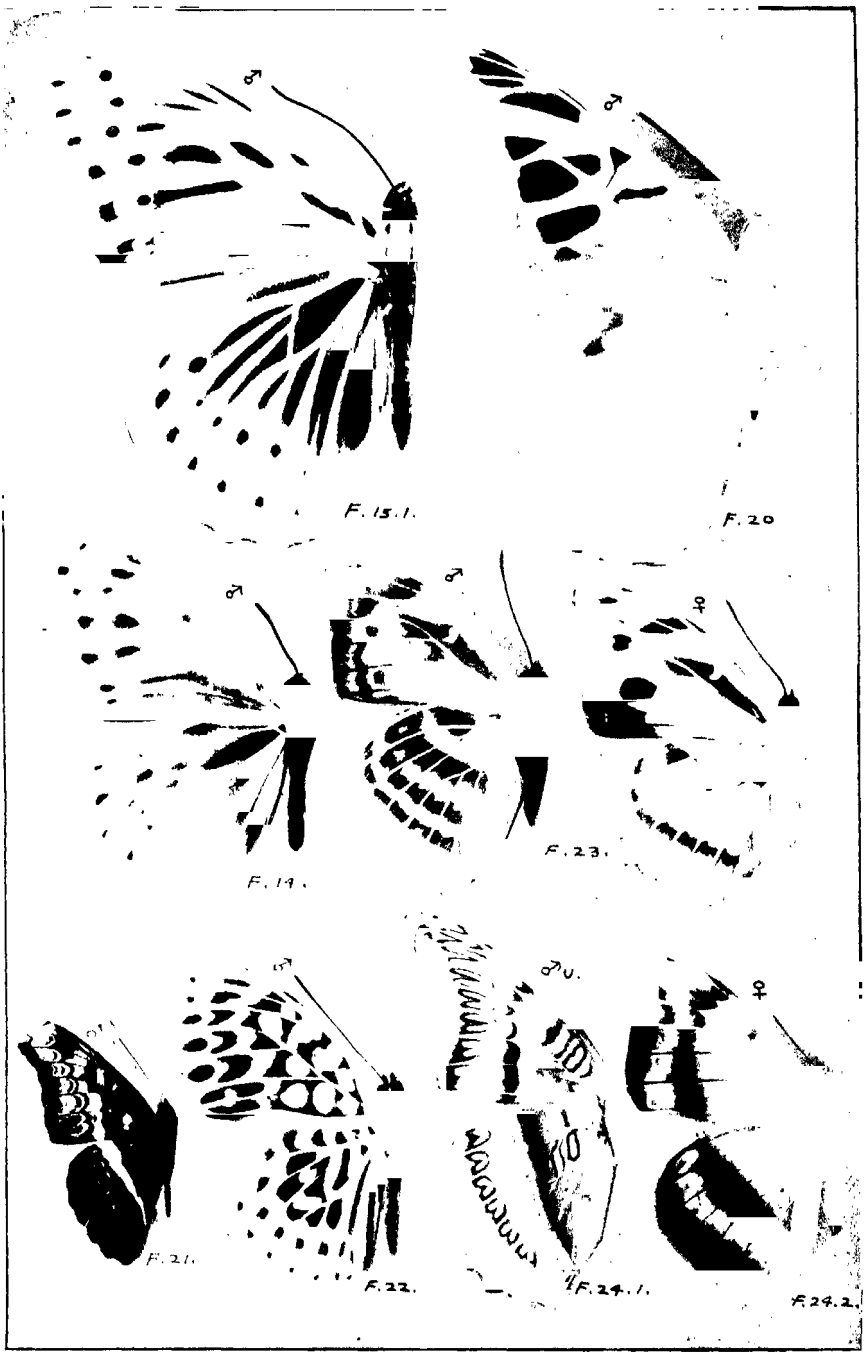

F. **Nymphalidae.** 16. *Dichorragia*: 17. *Stibochiona*: 18. *Euthalia.*

*See agenda and corrigenda page 302.*



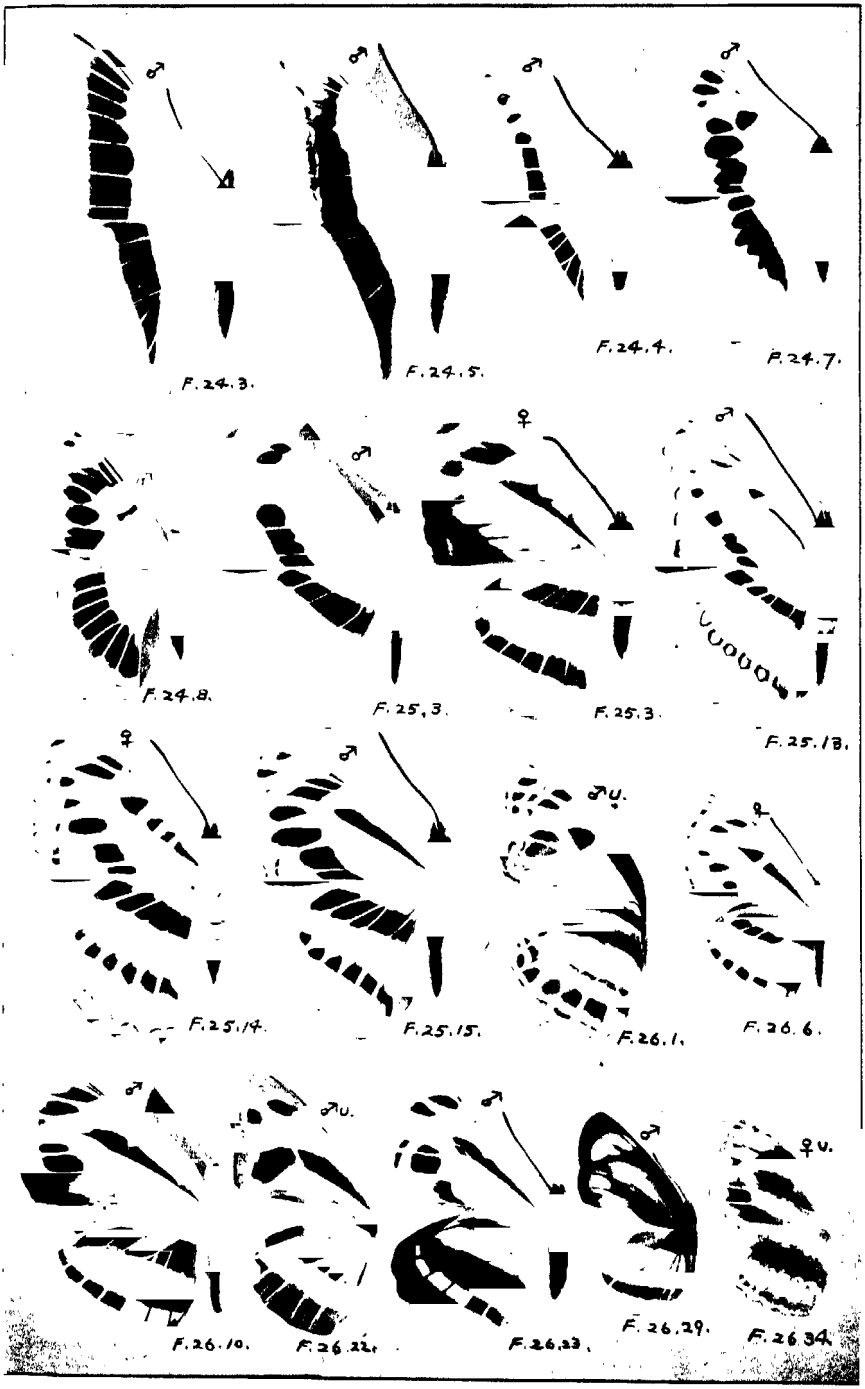

**F. Nymphalidae. 18. *Euthalia*: 19. *Adolias*.**

*See agenda and corrigenda page 302.*

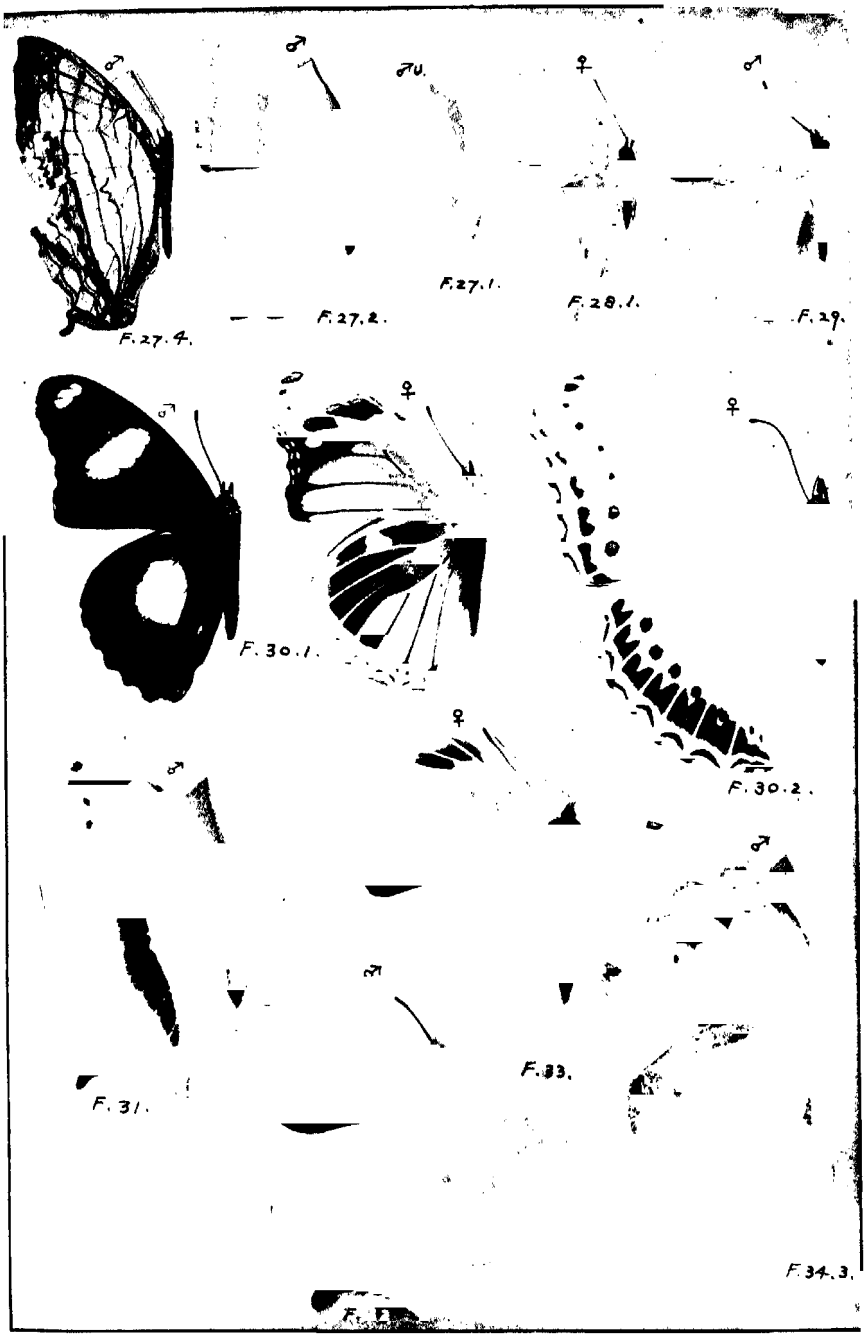



F. **Nymphalidae.** 14. *Calinaga*: 15. *Penthema*: 20. *Parthenos*: 21. *Lebadea*: 22. 23. *Abrota*: 24. *Liminitis*.

*See agenda and corrigenda page 302.*

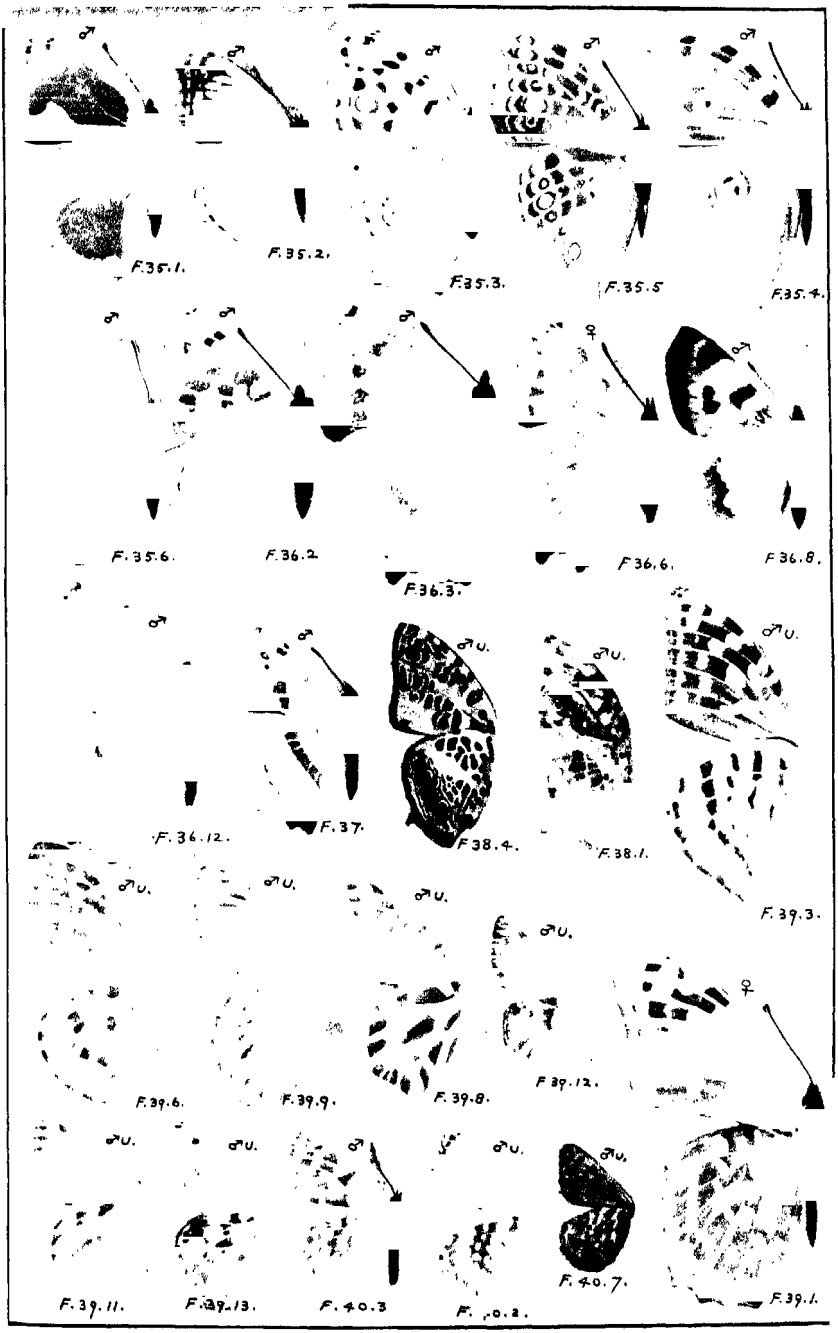



F. **Nymphalidae.** 24. *Liminitis*: 25. *Pantoporia*: 26.



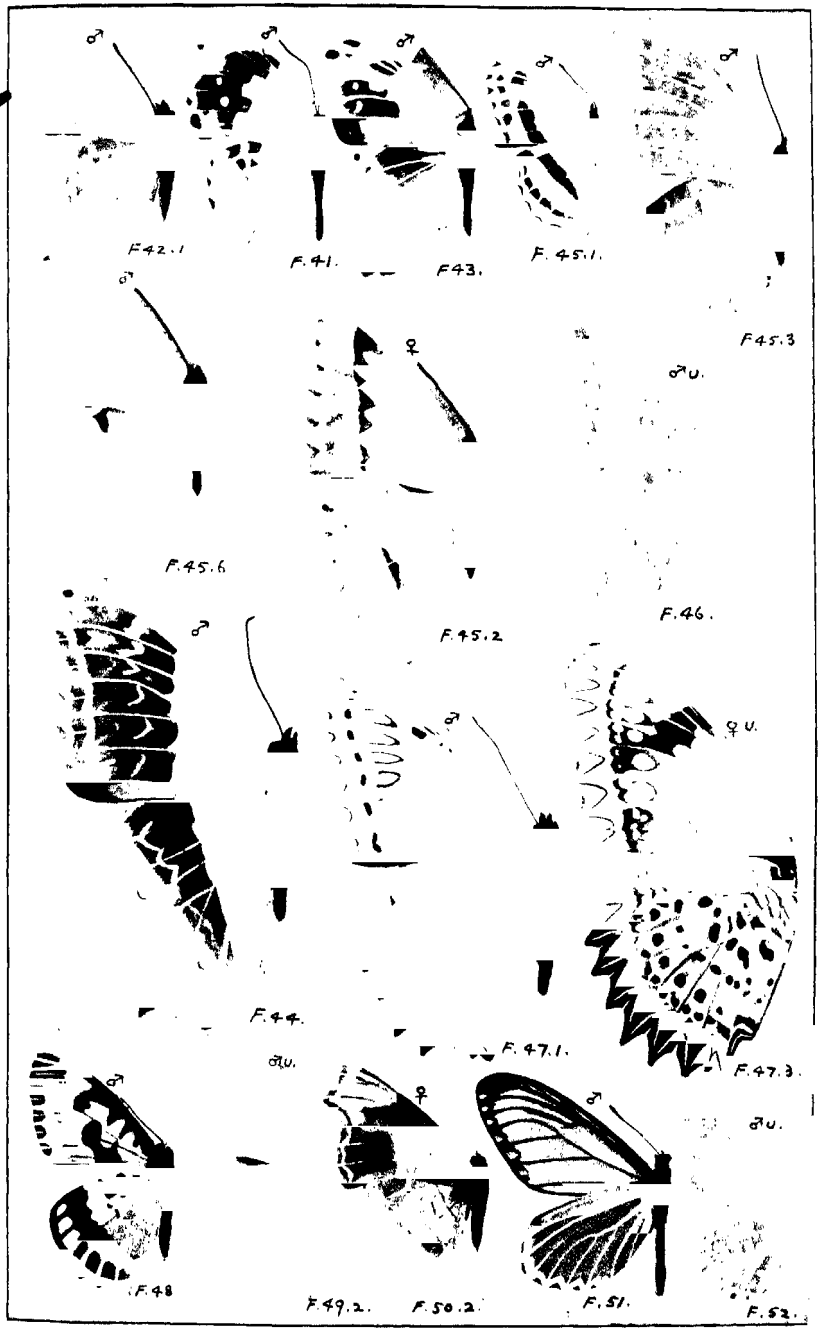

**Nymphalidae.** 27. *Cyrestis*: 28. *Chersonesia*: 29. *Pseudergolis*: 30. *Hypolimnas*: 31. *Yoma*: 32. *Rhinopalpa*: 33. *Doleschallia*: 34. *Kallima*.

*See agenda and corrigenda page 302.*



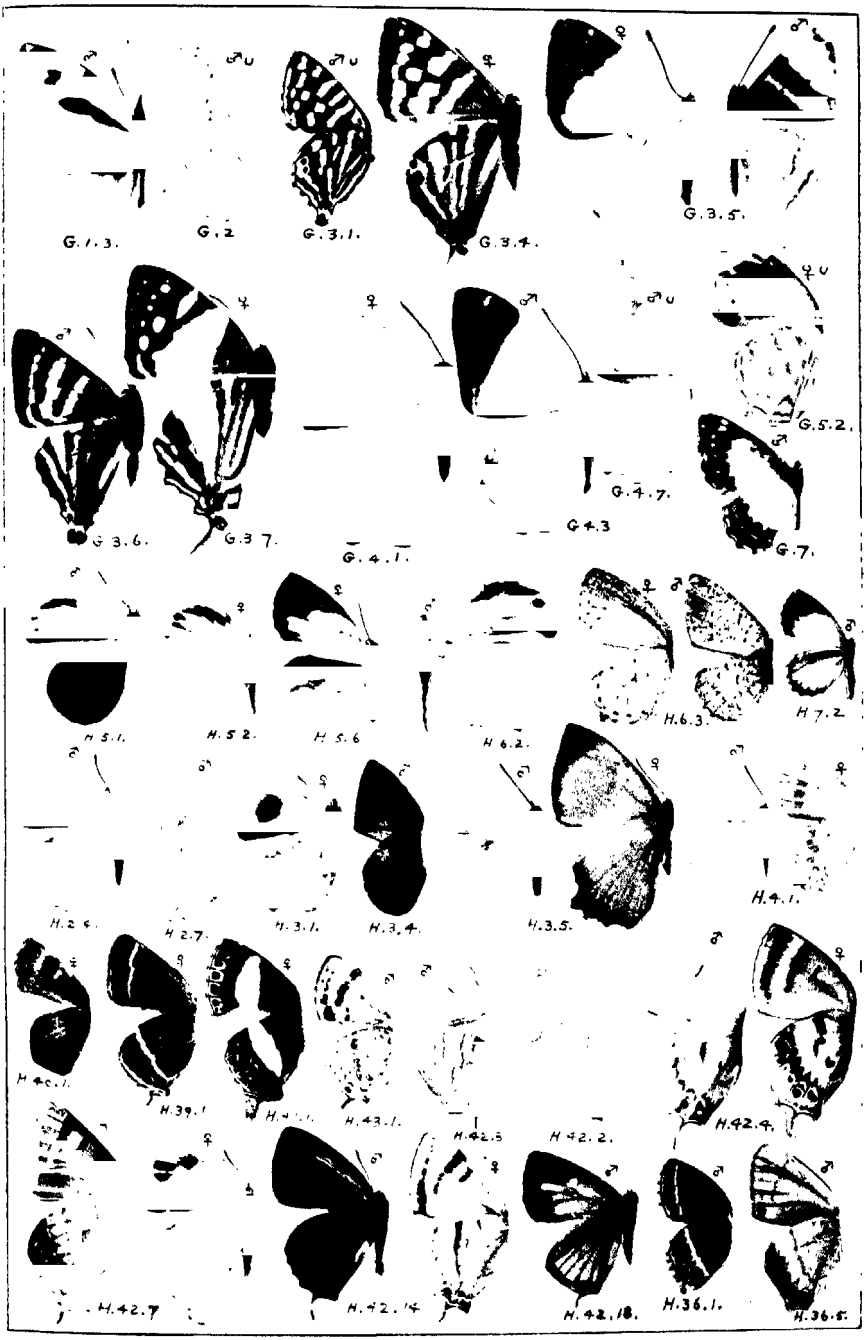

F. **Nymphalidae.** 35. *Precis*: 36. *Vanessa*: 37. *Araschnia*: 38. *Symbrenthia*: 39. *Argynnis*: 40.

*See avenda and corrigenda page 302.*



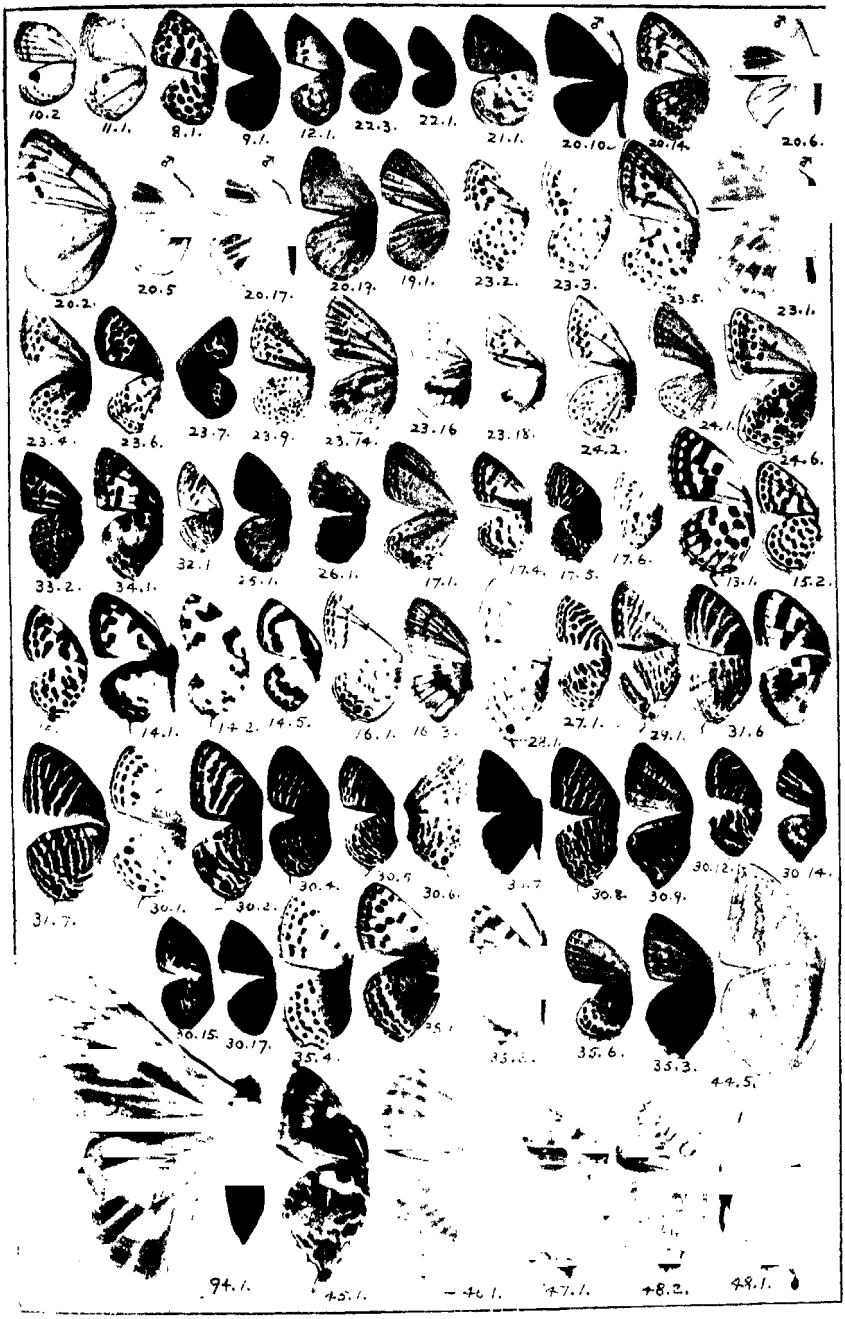

F. **Nymphalidae.** 41. *Cupha*: 42. *Atella*: 43. *Issoria*: 44. *Cynthia*: 45. *Cirrochroa*: 46. *Terinos*: 47. *Cethosia*: 48. *Byblia*: 49. *Ergolis*: 50. *Laringa*: 51. *Pareba*: 52. *Telchinia*.

*See agenda and corrigenda page 302.*



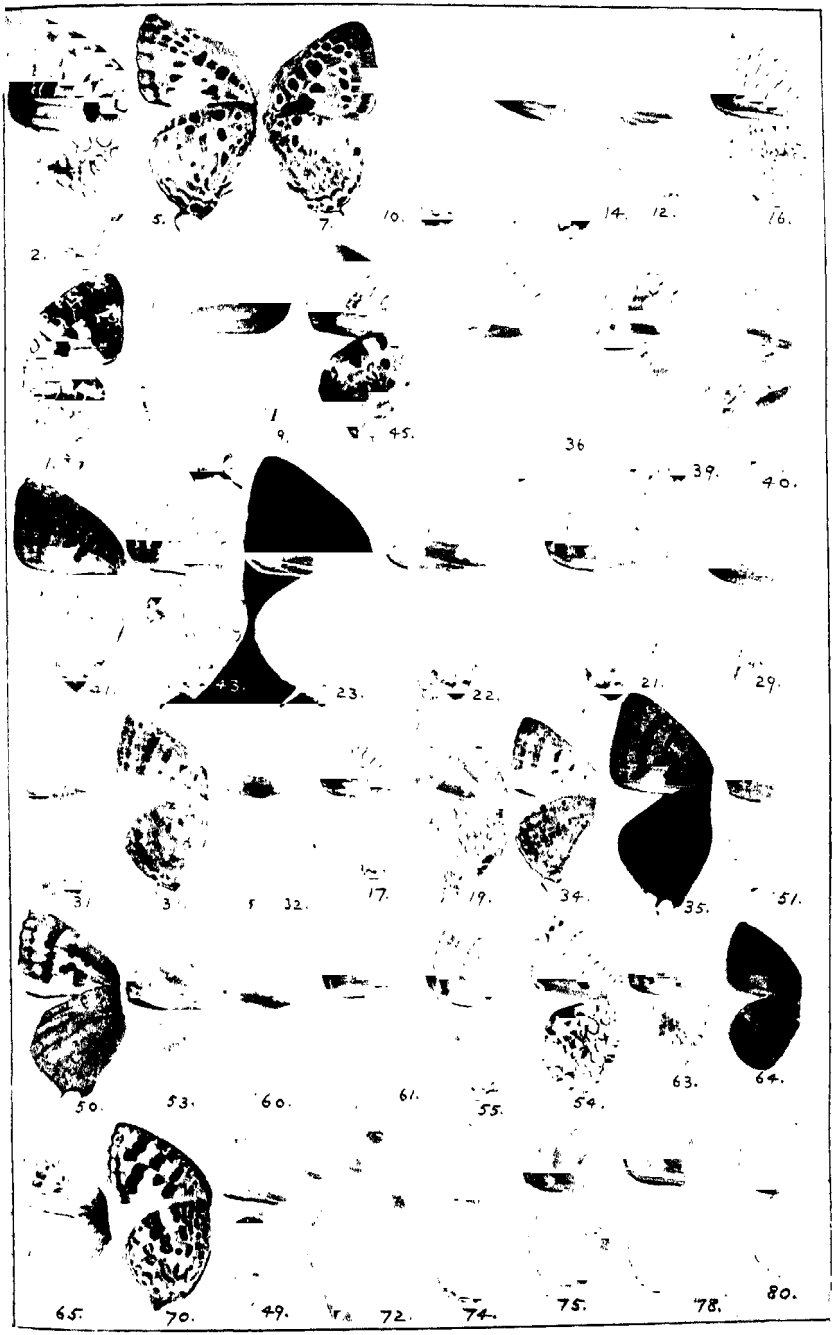

G. **Erycinidae.** H. 1-3. *Poritiinae*: H. 4-6. *Gerydinae*.
H. **Lycaenidae.** H. 37-43. *Thecla Group*: H. 36. *Ilerda*.

*See agenda and corrigenda page 302.*



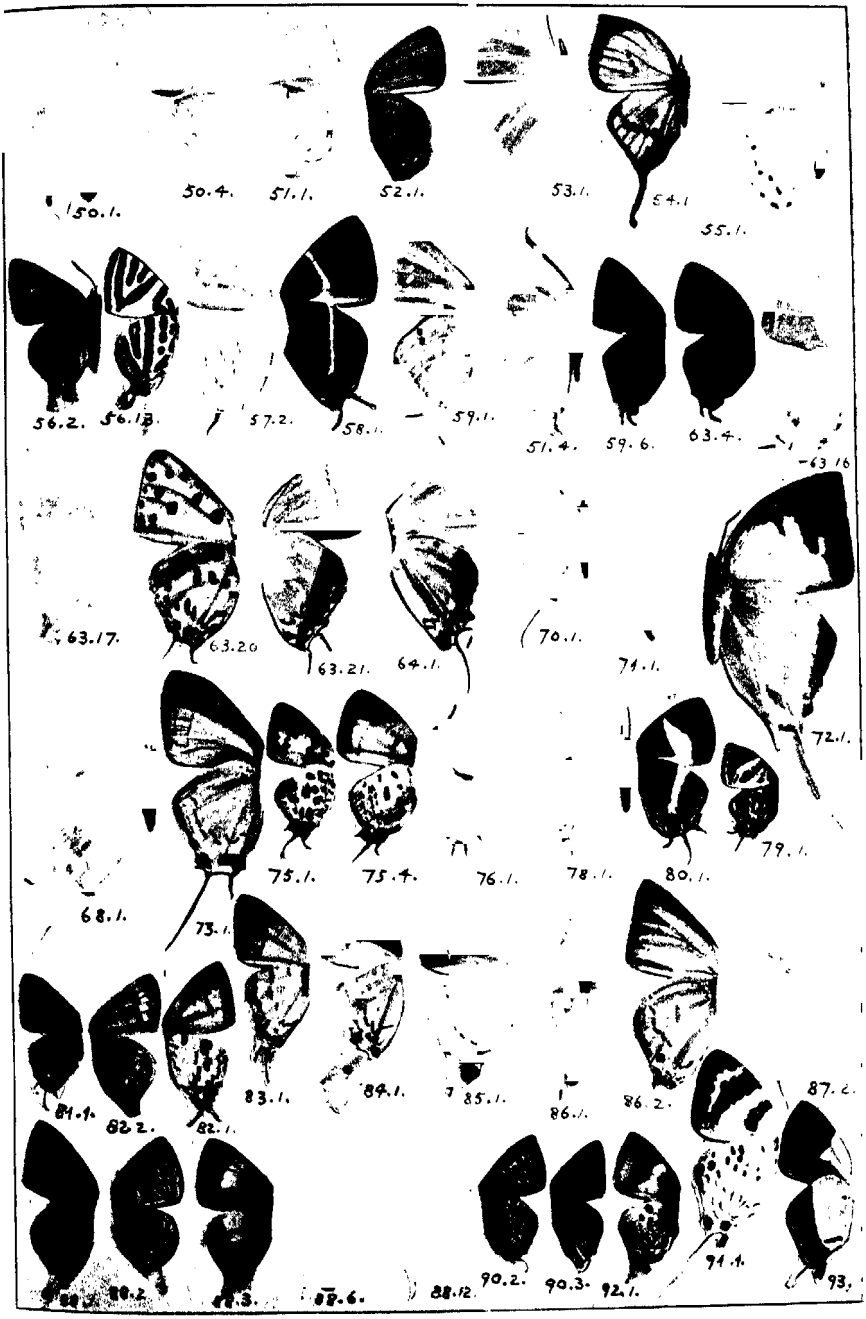

**H. Lycaenidae.** H. 8-35. *Lycaeninae*: H. 44. *Curetis*: H. 45-48. *Amblypodia Group*: H. 94. *Liphyra*.

*See agenda and corrigenda page 302.*



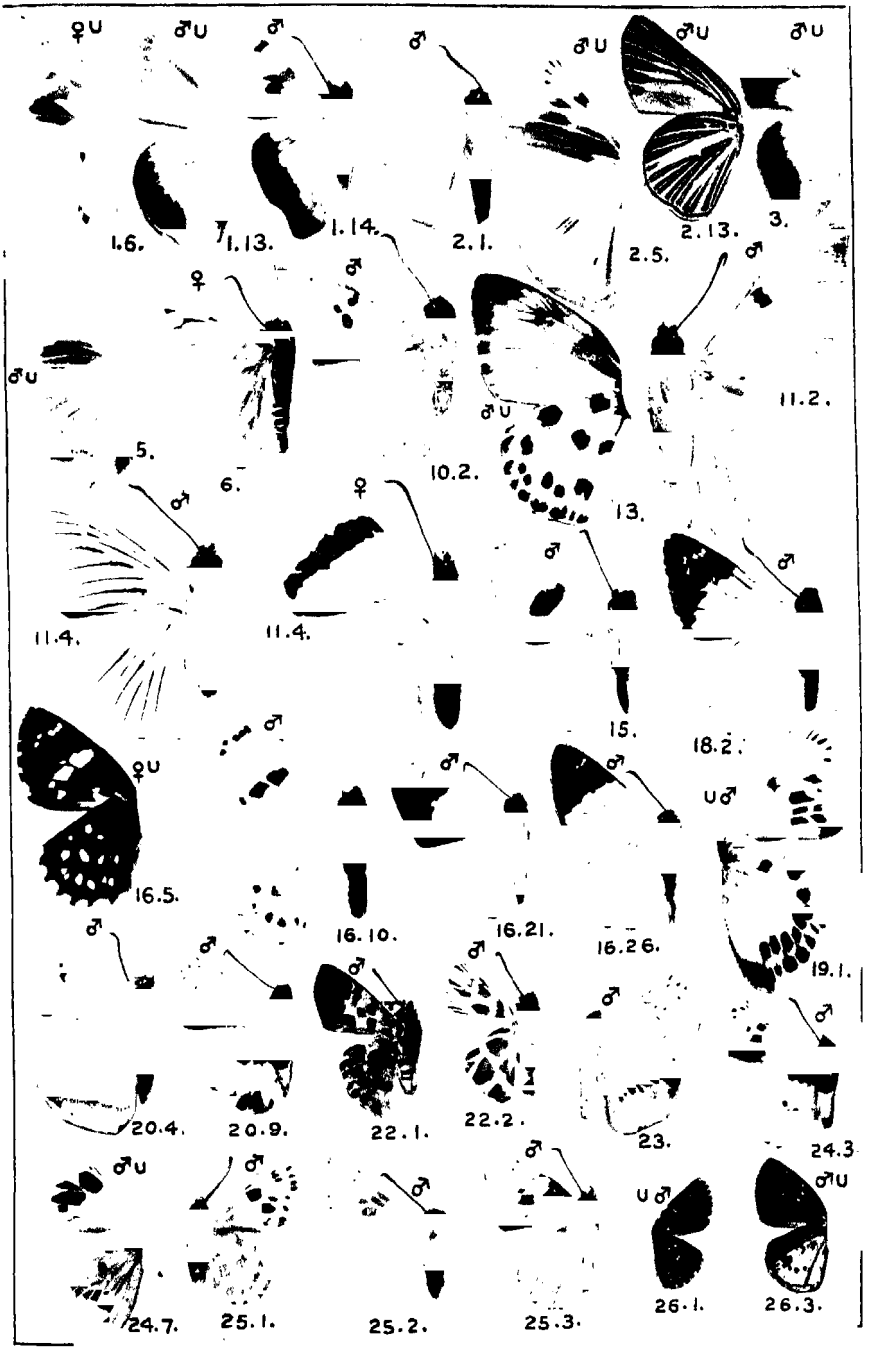

H. **Lycaenidae.** H. 49. *Amblypodia.*

*See agenda and corrigenda page 302.*



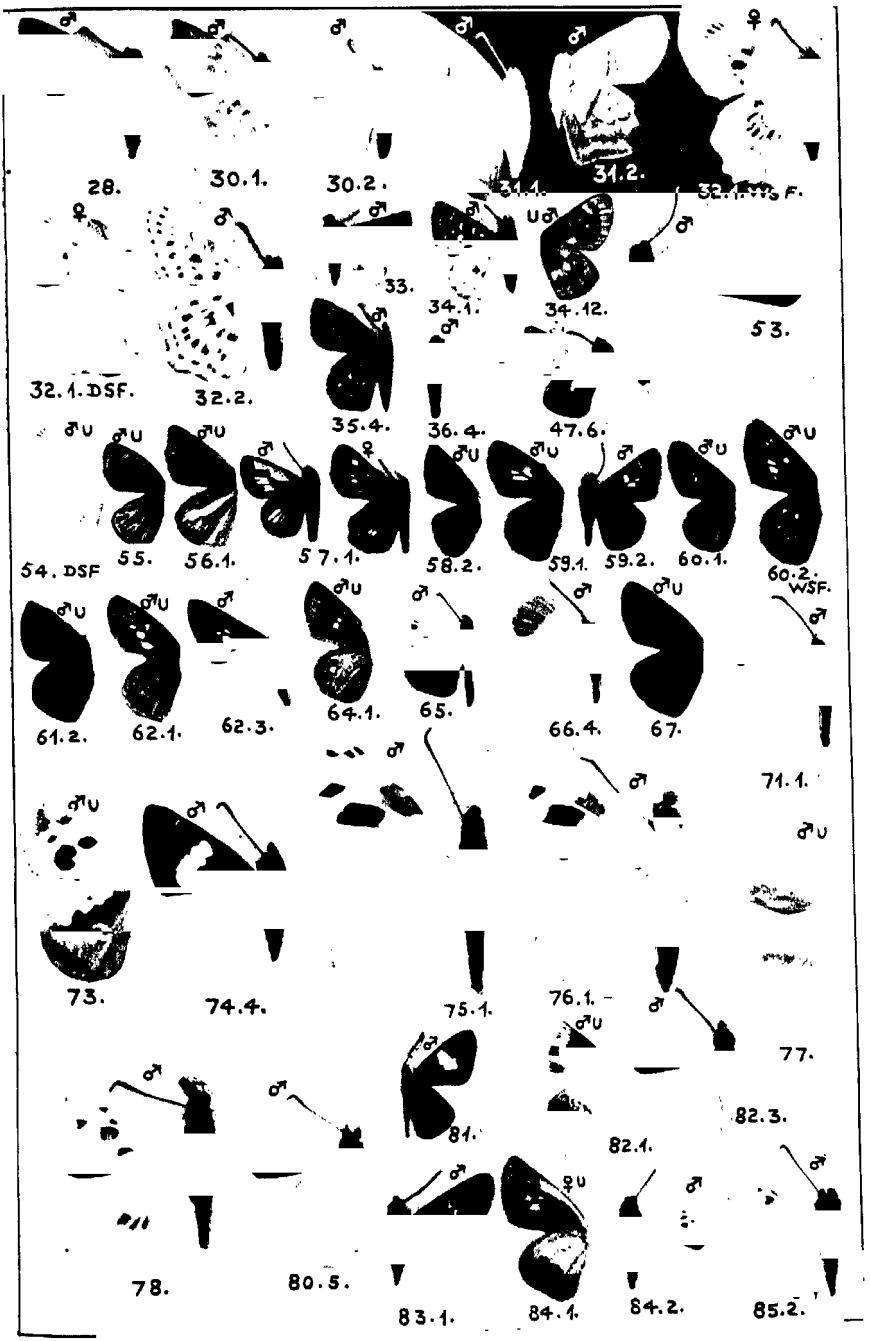

Groups 50-52. *Surendra*: 53-55. *Loxura*.
H. **Lycaenidae.** 56-57. *Spindasis*: 58-63. *Tajuria*: 64-70. *Jacoona*: 71-78. *Marmessus*: 79-80. *Horaga*: 81. *Catapoecilma*: 82-84. *Hypolycaena*: 86-93.

*corrigenda page 302.*



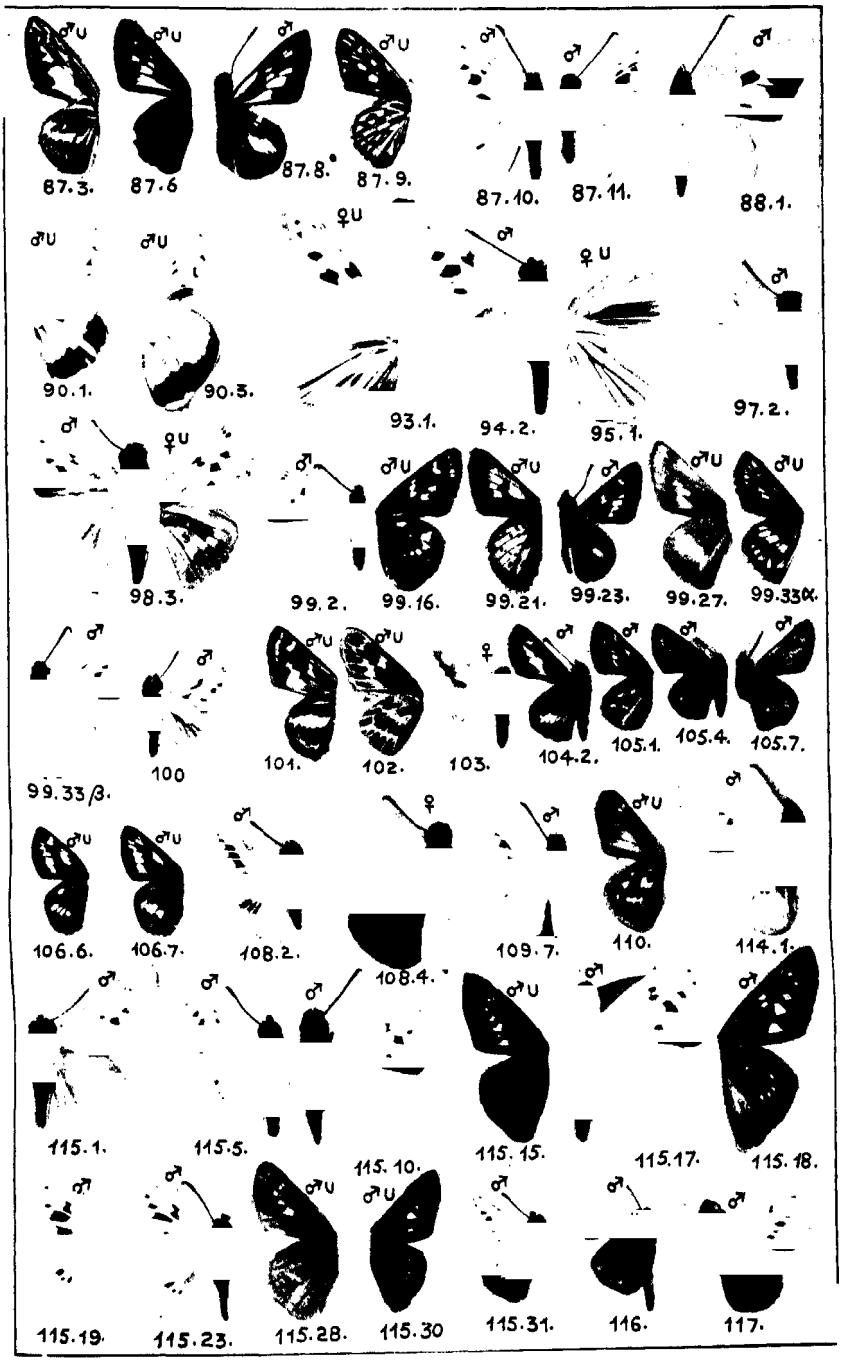

*Ismeninæ. I. Hesperiidæ. Celaenorrhinæ.*

*See agenda and carrigenda page 302.*




I. **Hesperiidæ.** *Celænorrhinæ* (Part).
*Hesperiinæ. Pamphilinæ* (Part).

*See agenda and corrigenda page 302.*




1. **Hesperiidæ.** *Pamphilinæ* (Part).

*See agenda and corrigenda page 302.*